

The Impact of Study and Learning Strategies On Post-Secondary Student Academic Achievement: A Mixed-Methods Systematic Review

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ABSTRACT

Background:

Within academic development, it is important for students to use effective study strategies to facilitate learning. Techniques used for long-term information retention include note taking strategies, time management, methods of self-testing and active recall. These strategies are explored to help students learn more effectively to attain their academic goals.

Methods:

A mixed-methods systematic review of peer-review articles and grey literature was conducted with a predetermined criteria for a convergent integrated synthesis approach. PsychInfo (Ovid), Web of Science, and ProQuest databases were searched with guidance of a PICO-P logic grid and search strategy using keywords of student, study strategies, and achievement alongside filters. Initial studies were screened and reconciled by two independent authors with the use of a piloted screening tool. Using the Mixed Methods Assessment Tool (MMAT), included studies were assessed for quality. Two authors independently performed data extraction. Heterogeneity in study designs, outcomes, and measurements precluded meta and statistical analyses; thus, a qualitative analysis of studies was provided.

Results:

Four major themes contributing to academic performance were identified among the appraised articles. These themes were self-testing, scheduling/time management, concept maps, and learning styles. Self-testing, scheduling, and concept maps were positively correlated with increased academic performance, while no correlation was found with learning styles and academic performance.

Conclusion:

Included studies provided evidence for significant differences in study strategies implemented by high and low achieving students, such as areas of motivation for learning, efficiency, active recall, retrieval practices, and concept maps. Understanding the effectiveness of certain study strategies is critical for students and educational facilitators to maximize learning.

KEY WORDS

(study strat* AND student*) OR (study strat* AND achievement)

INTRODUCTION

The transition to post-secondary studies is a challenging journey for many students, particularly within academia. Educational conventions and schedule changes require most college students to determine study strategies on an individual-basis through trial and error. A study asked 177 undergraduate students to rank the strategies implemented when studying (1). Many methods of learning, including self-studying, active, and retrieval-related methods (e.g., flashcards, past tests) were commonly listed, where 83.6% of students enlisted rereading notes as the most common learning strategy. However, rereading notes is evidenced as a passive and inefficient study strategy, thereby indicating a gap within student knowledge regarding awareness on effective study strategies. Within studying, passive engagement serves ineffectively as newly learned information may only be encoded in short-term memory. Students may be able to recall limited amounts of information for an upcoming evaluation, but will find application-based questions to be significantly more challenging due to lack of strong foundational comprehension of materials. Thus, rereading, highlighting, or underlining study material serve as overall less effective and passive study strategies commonly adopted by low-achieving students (2). Contrastingly, self-testing is a method of retrieval practice used to build long-term retention of newly learned material (3). Although some students reported using the self-test method, most justified the choice as a strategy to test their knowledge of the material and gauge the amount of time needed to further engage with content. These strategies fluctuate frequently amongst students, which reflects the uncertainty that many students have when it comes to effective study habits.

Effective study strategies (including efficient note-taking, time management, and active recall methods) are an important key to academic success. Study strategies involve choosing study materials best suited for the student's unique way of learning. Study materials are learning tools that assist students in further synthesizing and reorganizing content such as flashcards, note-taking and concept map templates (4). Note-taking strategies involve learning how to extract important information from a lecture or textbook reading, and can play a significant role in the study process and the foundation for practicing good study strategies. For project management and study task prioritization, creating a to-do list allows for effective planning and scheduling. A study investigated the advantages to employing higher working memory, the capacity to prioritize and remember important information (5). The researchers used recall tasks to design experiments testing participants' recall accuracy. With descriptive statistics, a relationship was determined between working memory and recall, as well as between working memory and selectivity. These were measured and scored as the proportion of obtained points

and maximum points against the possibility of gaining chance points. Statistical significance was determined with all 4 experiments scoring over 88% in reliability. Thereby, these relationships indicate importance in setting attainable long-term and short-term goals to stay productive.

Active recall and spaced learning are effective strategies to retain information for longer periods of time, such as using flashcards or teaching unfamiliar concepts to others. The forgetting curve, founded by psychologist Hermann Ebbinghaus, displayed negative correlation between information retention and time (6). Spaced repetition encompasses re-exposure to information, which further solidifies memories (7–9). Thereby, spaced learning disrupts the forgetting curve, to allow for new information to be encoded in long-term memory. With increased intervals of revisiting material, more time can be provided between each successive session.

Another issue that can reduce efficient information retention is multitasking. A study examined the impacts of multitasking on academic performance and learning outcomes. When students attended to two sources of information, these students showed poorer learning outcomes ($p = 0.023$) with limited accuracy in memory retention. However, when asked to only focus on one source of information, working memory capacity was improved ($p = 0.080$) and students were also more confident in learning effectiveness. Thus, multitasking has shown a decrease in the amount of information recalled when evaluated, compared to those who focused on a single task (10). Within multitasking, task switching occurs when attentional resources are shifted to complete another task set (11,12). When constantly switching between tasks, the brain requires additional time to refocus due to the increased demand for working memory processing, which may easily disrupt productive workflow (12). Therefore, it is highly recommended that one focuses on one task to be completed at a time and avoid task-switching. The Pomodoro technique is gaining popularity among students for help with time management.

A study on 623 college students in an introductory biology course in 2019 came to the conclusion that college students used four strategies on average when studying, with half of the strategies identifying as active recall methods. Students who used more active study strategies for longer periods of overall study time were seen to have more positive reflection in their marks. Although students began studying six days before for an exam on average, the amount of days spent preparing in advance did not correlate with increased performance. College students also reported being distracted 20% of the time during study sessions. Amount of time spent studying, types of strategies used and minimizing distractions are all significant factors that contribute to a students' overall academic performance, which must be further analyzed (13). In relation to specific study strategies, researchers determined common study methods to include completion of past exam questions (100% of students), rereading material (92.3% of students), explaining concepts to peers (7.7% of students), and using flashcards (7.7% of students) (14). Study strategies are highly variable and many factors must be taken into account, including the unique learning styles of students.

The aforementioned study strategies focus on developing a deeper understanding of material and content. Mastering these study techniques will support goal orientation, with a clear objective and intentions in mind. Effective application of study strategies will support student familiarity of newly learned concepts and ideas, particularly for application in different problem-solving scenarios. Among 931 undergraduate students in an introductory biology course, high academic achievers were found to implement more self-testing strategies, less likely to study last minute, and more likely to plan a study schedule in advance (15). A good learning attitude, self-motivation and proficiency in adapting better learning and study strategies are correlated with higher academic achievement (16). These students are also aware of long-term goals, such as pursuing a dream career, and strengthening effective learning strategies is critical for success as lifelong learners.

This systematic review aims to answer the following questions: What are the most effective study and learning strategies that result in higher academic achievement? Through conducting detailed studies and consulting experts in the field, this systematic review will contribute towards a deeper understanding of specific effective study strategies. Specifically, present literature will be examined to determine potential avenues to increase academic achievement by building on study habits and learning strategies.

METHODS

To determine the effectiveness of study and learning strategies on student achievement, a systematic review was conducted for peer-reviewed and grey literature from January to May 2021, using search strategies including keywords, truncations, and booleans. The current review was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The protocol of this systematic review was registered with PROSPERO (record ID: CRD42021234245). PROSPERO is an international database of prospectively registered systematic reviews in health and social care.

Study design and setting

This systematic review aims to assess effective study strategies to be integrated towards virtual interventions, particularly within the development of the Felicity App. The Felicity App is a virtual application targeting young adults aged 15 to 40 years old. Felicity aims to support productivity enhancement through psychological interventions in various aspects, including positive reinforcements for educational/work productive behaviours. App features will also include productivity tools such as to-do lists, calendars, and reminder notifications. Positive reinforcement tools include psychological interventions like mental health exercises (such as self-affirmations, mindfulness, and other techniques), time management tips (delivered through notifications and avatar narratives), and positive reinforcement rewards for productive behaviours (through point-systems and potential leaderboards). The Felicity App aspires to guide

students into becoming independent, self-regulated learners by encouraging students to choose appropriate strategies, set goals, reflect on performance and modify accordingly.

This systematic review investigated the effectiveness of learning strategies to determine the pertinence of selected literature to improve student academic performance and productivity. A virtual application setting was chosen as the medium to deliver the functions available in the Felicity App due to its accessibility, convenience, and wide usage amongst the target age group of individuals between the ages of 25 and 40. The mixed-method study design was employed to analyze both qualitative and quantitative psychological behaviour research data related to study or learning strategies.

Inclusion/Exclusion Criteria

The inclusion/exclusion criteria was predetermined, where included studies consisted of undergraduate or professional school students aged 18–40 years old with no pre-existing physical/mental conditions. Eligible studies measured academic achievement as Grade Point Average or test performance of students while comparing those using study or learning strategies against non-users. Only primary studies and grey literature were included, where systematic reviews, literature reviews, and opinion texts were excluded as secondary literature. Reference lists of included articles were hand searched and screened for potential inclusion. Studies were excluded if test outcomes did not compare before and after the implementation of study or learning strategies or if outcomes did not compare differences in strategies between high- and low-achieving students. Studies were also excluded if the sample consisted of a single gender or if the study setting was an under-developed country.

Search strategy

A logic grid was constructed to guide the search strategy aligned with the PICO – P (population): undergraduate or professional school students; I (intervention): study or learning strategies; C (comparison): compared to subjects that do not use any study or learning strategies; O (outcome): increased academic performance (GPA, test score).

A diverse selection of literature, which included grey, was reviewed based on a predetermined inclusion/exclusion criteria. The databases searched were PsychInfo (Ovid), Web of Science, and ProQuest for the period of January 1990 to December 2021 using keywords and subject headings related to learning strategies and college student academic performance. The key terms used in building the search strategy for the Databases were student, study strategies, and achievement (see Appendix 1 for the complete search strategy and Appendix 2 for the grey literature search strategy). The key terms were combined using Boolean operators to search the electronic Databases. In addition, filters were applied to each database to optimize relevance for study inclusion. For PsychInfo, results were filtered by subjects of academic achievement, college students and learning. For Web of Science, results were filtered under the subject of psychology,

and results found within ProQuest were filtered under the subjects of college students and academic achievement.

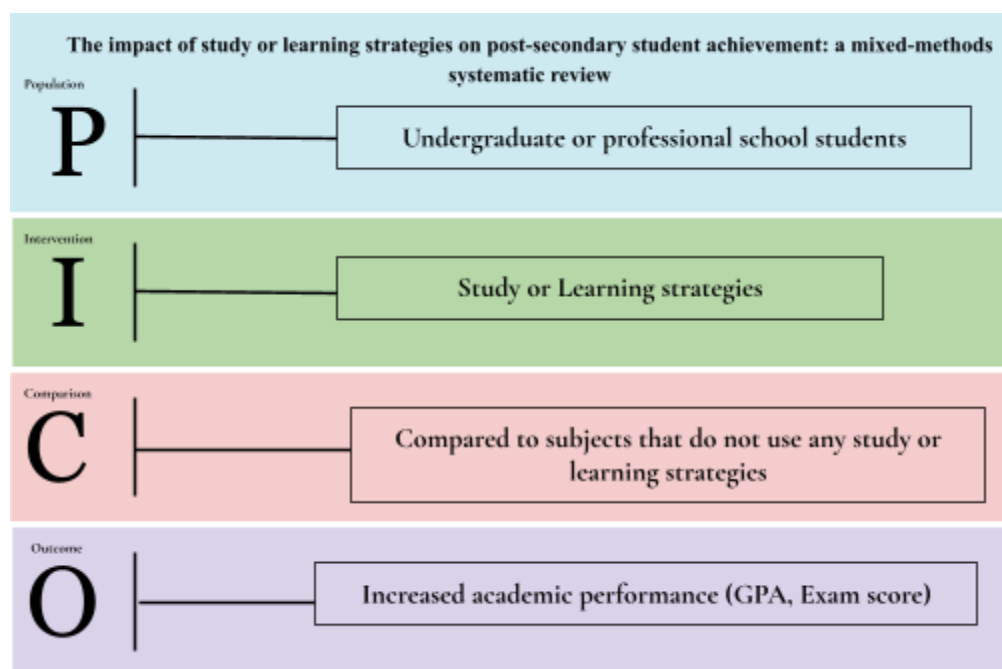


Figure 1. Research question in PICO format.

Data collection and abstraction

Collection of data was first done by gathering database search results and removing any duplicate literature pieces using Endnote (version X8.2). Endnote is a commercial reference management software package used to manage bibliographies and references.

An abstract screening tool, consisting of 9 questions, was created using inclusion and exclusion criteria to ensure only relevant data would be collected. A pilot test of the abstract screening tool was done with 25 articles using our search strategy found in a database different from the ones used in the study. Initial pilot testing resulted in an accuracy score of 40%. Three independent authors reconciled discrepancies and modified the screening tool to consolidate objectivity and accuracy of the tool. Re-testing of the screening tool resulted in an accuracy score of 77%. Two review authors applied the modified screening tool to the final list of peer-reviewed and non-peer-reviewed articles and analyzed specific sections of the literature, including purpose, methods, results, and potential future applications or improvements. Upon its integration with the collected data, two review authors independently used the tool to analyze titles and abstracts, with a third review author present to resolve any disagreements. Articles that were considered relevant remained for another round of screening, in which the same two authors independently performed a full-text analysis to include and exclude articles according to the eligibility criteria.

Hand-searches were then performed independently to fill in any gaps in the literature from the initial search strategy. The same two review authors independently applied the screening tool and performed the same two-step process to eliminate irrelevant literature. Screening of all relevant literature was completed on February 14th, 2021. A final list of screened articles were further processed during data extraction, where MMAT quality appraisal methods were implemented.

Assessment of study quality, certainty of evidence, and limitations

The Mixed Methods Assessment Tool (MMAT) was used to assess the quality of the articles from a final list of 98 articles obtained after full text screening, including grey literature and hand searched articles. This process was performed independently by two authors from February 17th to February 21st, 2021. The MMAT is an appraisal tool used to assess the methodological quality of articles organized into five categories: qualitative research, randomized controlled trials, non-randomized studies, quantitative descriptive studies and mixed methods studies. Each category had five criteria to rate, and all articles were kept despite their overall rating. Articles that were removed included duplicates and retracted articles. Reconciliation between the two authors followed with disagreements settled with a third author. A list of 67 quality appraised articles with respective MMAT scores were produced.

It was crucial to ensure that similar external conditions were shared among all papers, including the state of the country (developing or developed countries), and how they may compare to the target state, as some may have different standards in comparison to general developed countries. This characteristic was not included in the quality assessment, but to ensure the papers fit that criteria, an analysis on the state of every article's origin country was done during the first screening protocol. In terms of the structure of MMAT assessments, there have been various discrepancies in previous reliability tests regarding "non-randomized" (classified as set 3) and "qualitative" (classified as set 1) sections (17). Due to the more complex analysis provided in these types of papers, these discrepancies may be due to varying perspectives by those completing the quality assessment. In order to secure objective and accurate evaluations, this uncertainty was resolved during reconciliation, where quality assessment members discussed any inconsistencies and agreed on a final assessment that best reflected the article.

Data extraction

Data was extracted by two authors independently, and took place from March 7th to March 12th, 2021. A table was created and data was extracted based on the categories: First author and title of included study, country, study design, duration, participant information, type of data, summary of the main outcomes, and quality/design score obtained from the process mentioned in the prior section. Authors reconciled disagreements from March 13th to March 14th, 2021.

After full text screening, 186 articles were included. After quality appraisal conducted independently, 67 articles remained after duplicates were deleted. 54 articles remained after quality appraisal reconciliation.

Table 1. *Study characteristics*

Study Criteria	Sub-categories	Number of Studies belonging to each Sub-category
Study design	Qualitative research	6
	Randomized controlled trials	4
	Non-randomized studies	8
	Quantitative descriptive studies	36
	Mixed methods studies	0
Study population (participants)	Undergraduate students	35
	Graduate/professional school students (medical, dental, pharmacy, nursing etc.)	11
	Unspecified/no participants	8
Study setting (country)	United States	36
	China	5
	The Netherlands, Ireland	2
	India, Turkey, Norway, Qatar, United Arab Emirates, Finland, Taiwan, Belgium	1
Year published	1990 - 1999	4
	2000 - 2009	12
	2010 - 2019	37
	2020 - 2021	1
Type of data in study (many studies had overlaps in type of data used)	Questionnaire-based studies	42
	Intervention-based studies	11
	Observation-based studies	10
	Paper-based studies	5

	Meta-analysis studies	2
Study quality: MMAT design score	5 rating	20
	4 rating	28
	3 rating	6
	2 rating	0
	1 rating	0

RESULTS

Search results and screening

The search and identification of potential records were conducted by JO and MV from January 2021 to February 2021 (Fig. 2 PRISMA flow diagram). The database and hand-search identified 585 records, of which 38 were duplicates. JO and MV screened articles at the title and abstract level. Both screeners considered one hundred and eight-six full-text articles for inclusion, but only fifty-three records met the inclusion criteria (Fig 2. PRISMA flow diagram). One hundred and thirty-three studies were excluded because participants consisted of students from secondary or primary schools, academic performance was not measured, the study was not written in english, or the sample size was below 50 (see Appendix 3 for a list of excluded studies).

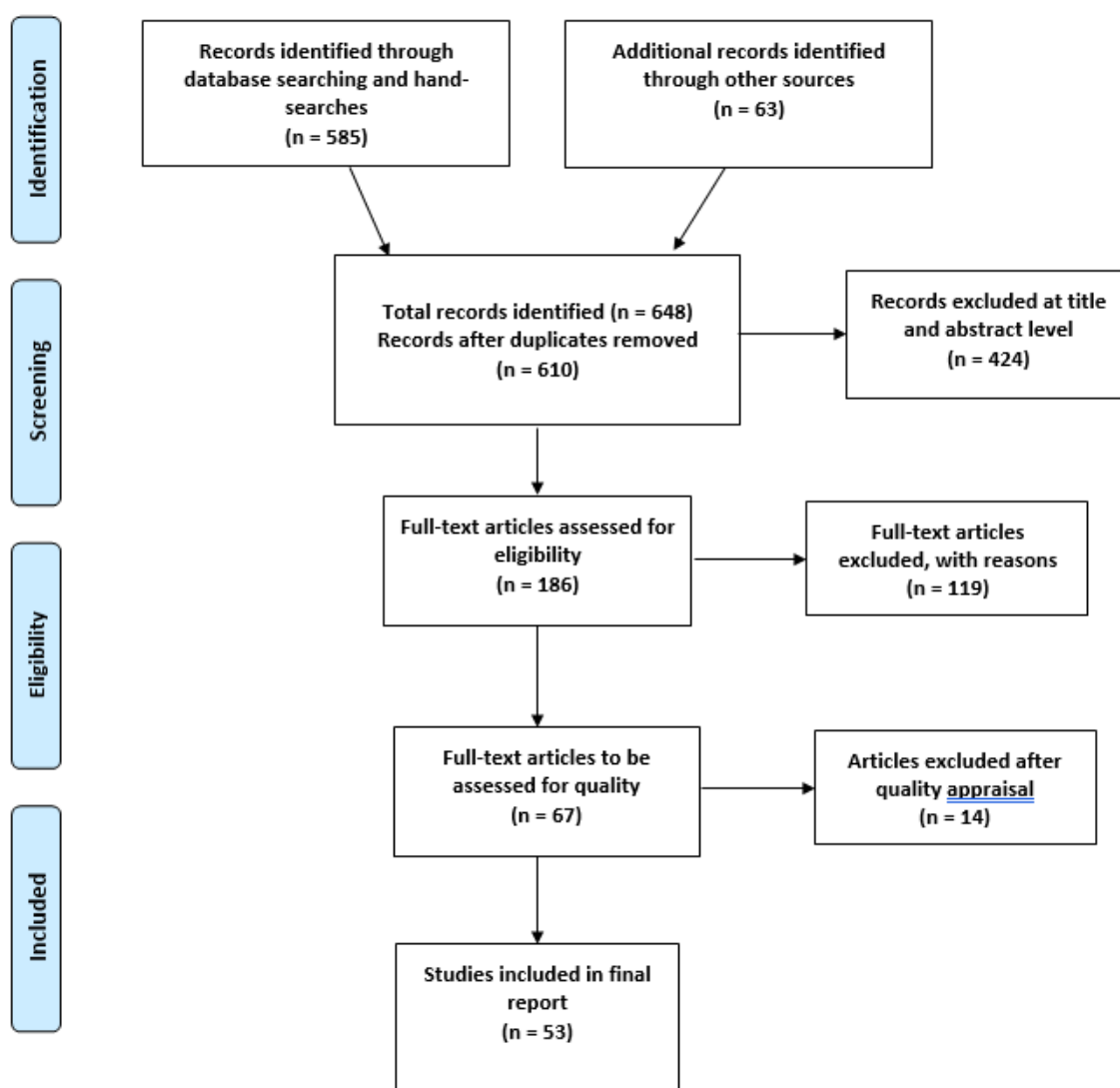


Figure 2. PRISMA (preferred reporting items for systematic reviews and meta-analyses) flow diagram.

Study Characteristics

Of the fifty-three papers included in this review, six were qualitative, four were randomized control trials, eight were non-randomized trials, and thirty-six were quantitative descriptive studies. Forty-two articles were questionnaire-based studies, eleven were intervention-based studies, ten were observational studies, five were paper-based studies, and two were meta-analyses. Twenty articles were given a 5 star quality rating, twenty-eight were rated 4 stars, and 6 were rated 3 stars. In terms of study settings, thirty-six articles were published in the United States, five published in China, two in the Netherlands and Ireland each, and one was published in India, Turkey, Norway, Qatar, United Arab Emirates, Finland, Taiwan, and Belgium.

each. Thirty-five articles focused on studying undergraduate student populations, eleven articles based on graduate or professional school students (i.e., medical, dental, pharmacy, nursing, etc.), and 8 articles had unspecified or no participants. In terms of year published, four articles were published from 1990 to 1999, twelve articles were published from 2000 - 2009, thirty-seven articles were published from 2010 to 2019, and one article was published most recently from 2020 to 2021. See study characteristics in Appendix 4.

Main Findings

Due to the variability of the studies and result measurement resulting in study heterogeneity, the findings from the studies were extracted and synthesized qualitatively to compare outcomes.

Four themes from the literature were identified. These themes included self-testing, scheduling, concept maps, and learning styles. It was found that these themes were nuanced and interrelated.

Self-testing refers to a specific category of study strategies involving evaluation of one's knowledge and understanding of course material through retrieval or recognition practice.

Sixteen articles demonstrated a significant positive correlation between self-testing and academic performance.

Scheduling/Time management refers to the creation of a schedule with concrete dates and times to review course material and study. Ten articles demonstrated a positive correlation between scheduling strategies and academic performance.

Concept maps refer to the visual organization and representation of knowledge that depicts suggested relationships between ideas. Three articles explored the validity of concept map usage for self-assessment of course material.

Learning styles refer to the preferential way in which a learner absorbs, processes, comprehends, and retains information. Seven articles discussed the correlation between VARK learning styles and academic performance.

DISCUSSION

This systematic review provides a comprehensive examination of the current literature regarding the topics of learning strategies aimed towards improving student academic performance. The results from this systematic review suggest that the outcomes for students are mixed and did not always result in increased performance. Generally, the implementation of study and learning strategies was associated with increases in test scores and Grade Point Average (GPA), but variation in the significance and level of improvement in performance was evident with different strategies and assessment methods. It was found that self-testing, scheduling, concept maps, and learning styles were the four major themes discussed in the literature. Self-testing, scheduling, and concept maps were positively correlated with increased academic performance, while no correlation was found with learning styles and academic performance. Each of the four themes will be discussed below.

Self-Testing

The following studies revealed self-testing as one of the best predictors of strong academic performance. Through the use of the Learning and Study Strategies Inventory (LASSI), self-testing was measured as one of the cognitive abilities and comprehension monitoring strategies used by students to assess their ability to review course material (19). A strong, positive correlation between self-testing and a high Grade Point Average (GPA) is apparent across all studies, where students who implemented effective self-testing strategies obtained greater achievement (20). Specifically, students with higher academic achievement scored higher on the self-testing subscale of LASSI, whereas students with lower academic achievement scored lower (21,22).

Although self-testing can be used as a metacognitive tool to evaluate progress and as a learning strategy to boost performance, high-achieving students reported using self-testing metacognitively more frequently (23). This finding suggests that self-testing is most effective when it is used to monitor how well the information has been learned as opposed to how familiar a certain concept is. This explains why the use of flashcards (one of the most popular self-testing methods) and similar retrieval-type strategies were found to be not significantly related to GPA (24). As flashcards may operate on the basis of passive-learning where students may not fully understand the presented factual information, this ineffective approach may be omitted and replaced with self-testing by introducing short concept-check practice questions to encourage deeper mental processing (25). This method will allow users to not only actively process the recently-learned information, but also reflect on their thinking patterns and face knowledge gaps which might have otherwise been ignored through the use of flashcards (26).

Scheduling/Time Management

A number of the included studies ($n = 10$) elicited students to implement a study schedule and dedicate specific parts of the day to studying (2,15,28,24,40). The results from the included papers suggest a strong positive correlation between scheduling strategies and academic performance (20,29,30,43,44). Significant differences between low and high achieving students revealed an increased use of study schedules and stronger time management skills for higher achieving students. While lower achievers were characterized by a focus on impending deadlines and studying late at night, higher achievers were characterized by planned study schedules and spaced practice. Moreover, one article implemented a study strategy course where students were taught how to create study schedules (45). Results from these studies indicated an increase in GPA, which is linked to better understanding and achievement of the course material, after taking the course (28,45). This suggests that students were capable of learning and adopting specific strategies which could then translate to increased academic performance.

Concept Maps

A concept map is an uncommon strategy when studying and was more often used for self-assessment of knowledge ($n = 3$). A positive correlation was found between concept map usage and academic performance, suggesting concept maps may be an effective and viable study strategy (31,32). Concept maps allow students to generate a visual representation of information and generate relationships between connected ideas (33–35). Typical reviewing strategies such as highlighting and re-reading notes showed no significant relationship (28) with concept map outcomes, suggesting a deeper level of understanding is required in order for concept maps to be effective at assessing learning. Strategies that involve deeper processing of information (36) such as self-testing followed by the creation of a study map may result in more stronger consolidation of information. Moreover, because of the visual nature of this strategy, concept maps may show increased benefits for visual learners when compared to auditory, read/write, or kinesthetic learners (37,38).

Learning Styles

In current literature outlining the influence of learning style preferences on academic performance, the VARK (Visual, Aural, Read/write and Kinesthetic) model is most utilized among other proposed types of learning style inventories. According to VARK, visual learners are those who prefer diagrammatic representations such as images and graphs, aural learners rely on auditory tools for information processing, learners who prefer to read/write often take notes and refer to written material, and kinesthetic learners learn through practice and experience (39). Although the concept of learning styles has been solidified through the VARK model, multiple studies provide evidence against the effectiveness of VARK learning styles on academic performance. As many of these studies assessed anatomy and physiology students, the collective findings support that the utilization of the VARK model in an academic setting has a limited contribution to assessment marks in these courses (41,42). Moreover, the slight variance in test scores was not attributable to learning style preferences, and no learning style conferred an overall advantage (41,42).

Given the well-established ineffectiveness of learning styles on academic performance across literature, implementing features which allow users to assess their learning styles through the *Felicity* Application should be avoided. Ensuring that *Felicity* focuses on providing resources pertaining to other successful study strategies instead would enable the users to improve their academic performance in a meaningful way.

LIMITATIONS

This systematic review integrated qualitative studies from peer-reviewed and grey literature within a range of literature. The holistic collection of data provides well-rounded perspectives of current data, but additional research should be pursued to assess quality and validity in greater depths. Furthermore, the data within this systematic review is limited by the searched databases and demographic restrictions. Data was not extracted from developing countries nor from

demographics outside of the age limit. Studies written in languages outside of English were excluded and may limit the scope of the data pool. Single-site studies are found in the included studies and may limit generalizability due to insufficient support towards findings. Results obtained from retrospective studies may not apply to a general population or draw concrete also hard to generalize and draw concrete conclusions due to the nature of the retrospective design. The limitations may have also been compounded with the use of multiple reporting systems that were used to collect these data. Though these limits are pre-determined to optimize relevance with the research aims in mind, further statistical analysis is required as a qualitative synthesis of findings was used with the diverse study designs and subsequent heterogeneity in study results.

In terms of quality appraisal, MMAT is comprehensive when appraising the quality of general types of study methodologies and designs. However, it does not provide specific criteria and may leave some important information left to the discretion of quality assessors. This lack of structure provides the advantage of being applied to a wide variety of articles, and authors must pre-determine assumptions to tailor the tool towards their own set of articles. A common criteria across most MMAT categories was the representativeness of the sample in relation to the target population, but an “acceptable” percentage breakdown of genders was not specified. As a result, quality assessment members found that most psychology-based articles had significantly more female than male participants, and pre-determined an acceptable gender percentage cut off point of 33% male and 67% female subjects or a smaller difference. The titles of the articles were also considered in deciding the representative level of the sample, with more specific titles being favoured over vague titles. Specific titles include specifying details of the subject undergraduate student population, country and institution where the study was conducted, and field of study. Due to the heterogeneity and mixture of quality, additional research and quantitative analysis may be required to further support findings.

It is also important to note that because most studies calculated grade point average (GPA) as a measure of academic performance, yet this may not be the best indicator of a student’s true academic abilities. There are many students who are able to retain and apply the knowledge that they have learned, but they are not able to effectively translate their knowledge well in a testing environment. Possible reasons that may be affecting a student's abilities to succeed in a testing environment could include anxiety and increased stress. These factors may cause students to overthink or misinterpret questions, which affects their overall performance on a test. Today, many courses offer other forms of assessments, such as take-home assignments, group projects, presentations and reflections. These types of assessments offer students more flexibility and the ability to reduce their stress levels, while still being able to demonstrate their knowledge using other methods of measuring academic performance.

During the systematic review process, there were more cross-sectional studies and fewer longitudinal studies. Based on the studies that were found in our literature search, long-term effects of learning strategies cannot be elucidated. Future directions should examine the effectiveness of these learning strategies on studying, managing stress and anxiety levels, and whether students feel more confident in their academic performance over time as they implement these learning strategies.

CONCLUSIONS

Findings within present literature have determined potential virtual interventions pertaining to learning strategies and student academic performance, including motivation for learning, efficiency, retrieval practices, and self-concept. Within included studies, a distinction has been drawn between high and low academic achievers based on differences in study strategies. For instance, high academic achievers tend to implement more active recall and deep-learning processes compared to low academic achievers. Recognizing and understanding the effectiveness of certain study strategies are critical for both students and professional teaching staff to maximize content learned and application to real world situations.

REFERENCES

1. Karpicke JD, Butler AC, Roediger HL. Metacognitive strategies in student learning: do students practise retrieval when they study on their own? *Mem Hove Engl.* 2009 May;17(4):471–9.
2. McAndrew M, Morrow CS, Atiyeh L, Pierre GC. Dental Student Study Strategies: Are Self-Testing and Scheduling Related to Academic Performance? *J Dent Educ.* 2016;80(5):542–52.
3. Hotta C, Tajika H, Neumann E. Students' Free Studying After Training with Instructions about the Mnemonic Benefits of Testing. *Int J Adv Psychol.* 2014;3(4):127.
4. Dobson JL, Linderholm T. Self-testing promotes superior retention of anatomy and physiology information. *Adv Health Sci Educ.* 2015 Mar 1;20(1):149–61.
5. Griffin ML, Benjamin AS, Sahakyan L, Stanley SE. A matter of priorities: High working memory enables (slightly) superior value-directed remembering. *J Mem Lang.* 2019 Oct 1;108:104032.
6. Murre JMJ, Dros J. Replication and Analysis of Ebbinghaus' Forgetting Curve. *PLoS ONE* [Internet]. 2015 Jul 6 [cited 2021 Apr 10];10(7). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4492928/>
7. Feng K, Zhao X, Liu J, Cai Y, Ye Z, Chen C, et al. Spaced Learning Enhances Episodic Memory by Increasing Neural Pattern Similarity Across Repetitions. *J Neurosci Off J Soc Neurosci.* 2019 Jul 3;39(27):5351–60.
8. Smolen P, Zhang Y, Byrne JH. The right time to learn: mechanisms and optimization of spaced learning. *Nat Rev Neurosci.* 2016 Feb;17(2):77–88.
9. Sisti HM, Glass AL, Shors TJ. Neurogenesis and the spacing effect: Learning over time enhances memory and the survival of new neurons. *Learn Mem.* 2007 May;14(5):368–75.
10. Pollard MA, Courage ML. Working memory capacity predicts effective multitasking. *Comput Hum Behav.* 2017 Nov 1;76:450–62.
11. Arabacı G, Parris BA. Inattention and task switching performance: the role of predictability, working memory load and goal neglect. *Psychol Res.* 2020;84(8):2090–110.
12. Emerson MJ, Miyake A. The role of inner speech in task switching: A dual-task investigation. *J Mem*

- Lang. 2003 Jan 1;48(1):148–68.
13. Walck-Shannon EM, Rowell SF, Frey RF. To What Extent Do Study Habits Relate to Performance? *CBE—Life Sci Educ*. 2021 Jan 14;20(1):ar6.
 14. Tomanek D, Montplaisir L. Students' Studying and Approaches to Learning in Introductory Biology. *Cell Biol Educ*. 2004 Dec 1;3(4):253–62.
 15. Geller J, Toftness A, Carpenter P, Manz C, Coffman C, Lamm M. Study strategies and beliefs about learning as a function of academic achievement and achievement goals. *Memory*. 2017 Nov 3;26:1–9.
 16. Yip M. Differences in Learning and Study Strategies between High and Low Achieving University Students: A Hong Kong study. *Educ Psychol - EDUC PSYCHOL-UK*. 2007 Oct 1;27:597–606.
 17. Pace R, Pluye P, Bartlett G, Macaulay AC, Salsberg J, Jagosh J, et al. Testing the reliability and efficiency of the pilot Mixed Methods Appraisal Tool (MMAT) for systematic mixed studies review. *Int J Nurs Stud*. 2012 Jan 1;49(1):47–53.
 18. Hong QN, Gonzalez-Reyes A, Pluye P. Improving the usefulness of a tool for appraising the quality of qualitative, quantitative and mixed methods studies, the Mixed Methods Appraisal Tool (MMAT). *J Eval Clin Pract*. 2018;24(3):459–67.
 19. Alkhateeb HM, Nasser R. Assessment of Learning and Study Strategies of University Students in Qatar Using an Arabic Translation of the Learning and Study Strategies Inventory. *Psychol Rep*. 2014 Jun 1;114(3):947–65.
 20. Senko C, Hama H, Belmonte K. Achievement goals, study strategies, and achievement: A test of the “learning agenda” framework. *Learn Individ Differ*. 2013 Apr 1;24:1–10.
 21. Albaili MA. Differences Among Low-, Average- and High-achieving College Students on Learning and Study Strategies. *Educ Psychol*. 1997 Mar 1;17(1–2):171–7.
 22. Dill AL, Justice CA, Minchew SS, Moran LM, Wang C, Weed CB. The Use of the LASSI (The Learning and Study Strategies Inventory) to Predict and Evaluate the Study Habits and Academic Performance of Students in a Learning Assistance Program. *J Coll Read Learn*. 2014 Jul 3;45(1):20–34.
 23. Dobson JL. Learning style preferences and course performance in an undergraduate physiology class. *Adv Physiol Educ*. 2009 Dec;33(4):308–14.
 24. Hartwig MK, Dunlosky J. Study strategies of college students: Are self-testing and scheduling related to achievement? *Psychon Bull Rev*. 2012 Feb 1;19(1):126–34.
 25. Brown D. An evidence-based analysis of learning practices: the need for pharmacy students to employ more effective study strategies. *Curr Pharm Teach Learn*. 2017 Apr;9(2):163–70.
 26. Sebesta AJ, Bray Speth E. How Should I Study for the Exam? Self-Regulated Learning Strategies and Achievement in Introductory Biology. *CBE Life Sci Educ* [Internet]. 2017 [cited 2021 Apr 6];16(2). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5459248/>
 27. Stunden A, Jefferies D. The effectiveness of short answers test papers in evaluating academic nursing programs: A review of the literature. *Nurse Educ Pract*. 2018 Nov 1;33:94–101.
 28. Dunlosky J. Strengthening the Student Toolbox: Study Strategies to Boost Learning. *Am Educ*. 2013;37(3):12–21.
 29. Elliot A, McGregor H, Gable S, Gable S. Achievement goals, study strategies, and exam performance: A mediational analysis. *J Educ Psychol*. 1999;91:549.
 30. Nonis SA, Hudson GI. Performance of College Students: Impact of Study Time and Study Habits. *J Educ Bus*. 2010 Mar 19;85(4):229–38.
 31. Hoskins TD, Gantz JD, Chaffee BR, Arlinghaus K, Wiebler J, Hughes M, et al. Effectiveness of a Low-Cost, Graduate Student-Led Intervention on Study Habits and Performance in Introductory Biology. *CBE Life Sci Educ*. 2017;16(3).
 32. Karpicke JD, Blunt JR. Retrieval practice produces more learning than elaborative studying with concept mapping. *Science*. 2011 Feb 11;331(6018):772–5.
 33. Dowd JE, Duncan T, Reynolds JA. Concept Maps for Improved Science Reasoning and Writing: Complexity Isn't Everything. *CBE Life Sci Educ* [Internet]. 2015 Dec 1 [cited 2021 Apr 10];14(4).

Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4710400/>

34. Carr-Lopez SM, Galal SM, Vyas D, Patel RA, Gnesa EH. The Utility of Concept Maps to Facilitate Higher-Level Learning in a Large Classroom Setting. *Am J Pharm Educ* [Internet]. 2014 Nov 15 [cited 2021 Apr 10];78(9). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4453086/>
35. Slieman TA, Camarata T. Case-Based Group Learning Using Concept Maps to Achieve Multiple Educational Objectives and Behavioral Outcomes. *J Med Educ Curric Dev* [Internet]. 2019 Sep 3 [cited 2021 Apr 10];6. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6724483/>
36. Broekkamp H, Van Hout-Wolters BHAM. Students' Adaptation of Study Strategies When Preparing for Classroom Tests. *Educ Psychol Rev*. 2006 Sep 20;19(4):401.
37. Laight DW. Attitudes to concept maps as a teaching/learning activity in undergraduate health professional education: influence of preferred learning style. *Med Teach*. 2004 May;26(3):229–33.
38. Baig M, Tariq S, Rehman R, Ali S, Gazzaz ZJ. Concept mapping improves academic performance in problem solving questions in biochemistry subject. *Pak J Med Sci*. 2016;32(4):801–5.
39. Balasubramaniam G, K I. A Study of Learning Style Preferences among First Year Undergraduate Medical Students Using VARK Model. *Educ Med J* [Internet]. 2016 Dec 29 [cited 2021 Apr 4];8(4). Available from: http://eduimed.usm.my/EIMJ20160804/EIMJ20160804_03.pdf
40. Willman S, Linden R, Kaila E, Rajala T, Laakso MJ, Salakoski T. On study habits on an introductory course on programming. *Computer Science Education*. 2015 Aug 10 [cited 2021 Apr 4];25(3):276–291.
41. Husmann P, O'Loughlin VD. Another nail in the coffin for learning styles? Disparities among undergraduate anatomy students' study strategies, class performance, and reported VARK learning styles. *Anat Sci Educ*. 2018 March 13 [cited 2021 Apr 4];12(1):6–19.
42. O'Mahony S, Sbayeh A, Horgan M, O'Flynn S, O'Tuathaigh CMP. Association between learning style preferences and anatomy assessment outcomes in graduate-entry and undergraduate medical students. *Anat Sci Educ*. 2016 Feb 4;9(4):391–399.
43. Yip M. Differences between high and low academic achieving university students in learning and study strategies: a further investigation. *Educ Res Eval*. 2009 Dec 7;15(6):561–570.
44. Yip M. Relation of study strategies to the academic performance of Hong Kong university students. *Psychol Rep*. 2002 Feb 1;90(1):338–340.
45. Overwalle FV, Metsenaere MD. The effects of attribution-based intervention and study strategy training on academic achievement in college freshmen. *Br J Educ Psychol*. 1990 Nov;60(3):299–311.

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JX devised and supervised the project and secured funding acquisition. JO, TT, YK, AW, MV, and HH wrote the manuscript. JO created figures. TT, YK, and JO computed numerical data and created tables. JO and MV performed the article screening. AW, TT and YK performed hand searches. TT and YK carried out the quality assessment. All authors refined and approved the manuscript.

Appendix 1 - Database Searches

Database	Search	Results
PsychInfo (1967 – 2020) by Ovid	(study strat* AND student*) OR (study strat* AND achievement)	109
Web of Science	(study strat* AND student*) OR (study strat* AND achievement)	188
ProQuest	(study strat* AND student*) OR (study strat* AND achievement)	184

Appendix 2 - Grey Literature Searches

Database	Search	Results
OpenGrey, Harvard Graduate School of Education	(study strat* AND student*) OR (study strat* AND achievement)	63

Appendix 3 - List of Excluded Studies**Excluded articles from database abstract screen**

Author(s)	Title
A. B. Abdelkarim, Naimed Hamadain, Elgenaid Tucci, Michelle Ford, Timothy Sullivan, Donna	US dental students' and faculty members' attitudes about technology, instructional strategies, student diversity, and school duration: A comparative study
A. B. Qureshi, Syed Akhtar Hussain Pirvani, Madiha Dawani, Narendar	Understanding and practice of evidence based search strategy among postgraduate dental students: A preliminary study
A. Blewitt	Math and science academy literacy instruction: Student study strategies, self-perception as readers, and reading achievement
A. D. Arthur	Differences between EDPSY 100 and non-EDPSY 100 students on study skills as measured by the learning and study strategies inventory (LASSI)

A. E. Enns, Gloria D. Montgomery, Cynthia Gonzalez, Vivian M.	Perceived stress, coping strategies, and emotional intelligence: A cross-sectional study of university students in helping disciplines
A. G. Caspi, P. Privman, M.	Viewing comprehension: Students' learning preferences and strategies when studying from video
A. Halbach	Finding Out About Students' Learning Strategies by Looking at Their Diaries: A Case Study
A. J. H. Holm, Hannah Rhodes, Matthew G.	Study strategies and "study drugs": Investigating the relationship between college students' study behaviors and prescription stimulant misuse
A. J. S. Onwuegbuzie, C. R.	Relations between hope and graduate students' coping strategies for studying and examination-taking
A. K. Geçer	A study on information search and commitment strategies on web environment and internet usage self-efficacy beliefs of university students
A. L. Heikkilä, Kirsti Nieminen, Juha Niemivirta, Markku	Relations between teacher students' approaches to learning, cognitive and attributional strategies, well-being, and study success
A. L. Loranger	The study strategies of successful and unsuccessful high school students
A. M. Ager, M.	Psychometric properties of the coping strategy indicator (CSI) in a study of coping behaviour amongst Malawian students
A. M. Francis-Cracknell, Shari Kent, Fiona Edwards, Emma Iles, Ross	Several strategies for clinical partners and universities are perceived to enhance physiotherapy student engagement in non-metropolitan clinical placements: a mixed-methods study
A. M. Rogiers, Emmelien Van Keer, Hilde	What they say is what they do? Comparing task-specific self-reports, think-aloud protocols, and study traces for measuring secondary school students' text-learning strategies
A. M. S.-R. Navea-Martin, Jose	Study on the use of self-motivational strategies in university students
A. M.-U. Schwed, Janice	Brain-friendly study strategies, Grades 2-8: How teachers can help students learn
A. P. Brugnolli, Serena Viviani, Debora Saiani, Luisa	Nursing students' perceptions of tutorial strategies during clinical learning instruction: A descriptive study
A. P. Reaser, Frances Petscher, Yaacov Proctor, Briley	The learning and study strategies of college students with ADHD
A. R. D. Daros, Katharine E. Meyer, M. Joseph Chow, Philip I. Barnes, Laura E. Teachman, Bethany A.	Impact of social anxiety and social context on college students' emotion regulation strategy use: An experience sampling study
A. Raimes	Language proficiency, writing ability, and composing strategies: A study of ESL college student writers
B. B. S. Silver, Everett V., Jr.	A study strategies self-efficacy instrument for use with community college

Greene, Barbara A.	students
B. K. S. Matin, Shahin	Comment on "coping strategy mediates the relationship between body image evaluation and mental health: A study with Chinese college students with disabilities"
B. R. B. Schirmer, J. Lockman, A. S.	What verbal protocols reveal about the reading strategies of deaf students: A replication study
B. S. B. Olaussen, Ivar	Identifying latent variables measured by the Learning and Study Strategies Inventory (LASSI) in Norwegian college students
B. W. Tuckman	The "Strategies-for-Achievement" Approach for Teaching Study Skills
C. A. B. Orsini, Vivian I. Tricio, Jorge A.	Motivational profiles and their relationships with basic psychological needs, academic performance, study strategies, self-esteem, and vitality in dental students in Chile
C. B. Darnon, Fabrizio	Achievement goals, study strategies, and intrinsic motivation: presentation of a research field and validation of the French version of Elliot and McGregor's (2001) scale
C. Badenier	Reliability and validity of the Learning and Study Strategies Inventory (LASSI) in a sample of students from the metropolitan region in Chile
C. C.-F. Wei-Po, Yen Tai-Ling, Liu	Predicting effects of psychological inflexibility/experiential avoidance and stress coping strategies for internet addiction, significant depression, and suicidality in college students: A prospective study
C. D. B. Meneghetti, Rossana Cornoldi, Cesare	Strategic knowledge and consistency in students with good and poor study skills
C. F. Russo	A comparative study of creativity and cognitive problem-solving strategies of high-IQ and average students
C. I. A. Ioannou, Eckart	Approaches to and treatment strategies for playing-related pain problems among Czech instrumental music students
C. I. Andrei, Varga Patricia Valentina, Zetes	Comparative study between study tracks: math and sciences or humanities, regarding academic motivation and learning strategies in the 9th grade students
C. M. K. Kokkinos, Apostolos Markos, Angelos	The relationship between learning and study strategies and big five personality traits among junior university student teachers
D. A. Kahn	Predicting math achievement using the SMALSI as a measure of motivation and learning and study strategy use
D. C. Kim Josefina Hubertina, Gino Kester, Liesbeth Kirschner, Paul Arthur	Do secondary school students make use of effective study strategies when they study on their own?
D. C. T. Beidel, S. M. Taylor-Ferreira, J. C.	Teaching study skills and test-taking strategies to elementary school students - The testbusters program

D. D. Shukla, Aj Pattaradanai	Student's perceived level and teachers' teaching strategies of higher order thinking skills: A study on higher educational institutions in thailand
D. K. Harless	A comparison of gender differences in the relationship among learning styles, achieving styles and study strategies of college students
D. L. E. Butler, Cory L. Poole, Shannon	Promoting strategic writing by postsecondary students with learning disabilities: A report of three case studies
D. S.-L. Rodger, Adele	Students' perceptions of debating as a learning strategy: A qualitative study
D. Z. Zhao, Huaqian Wu, Yingli Zhou, Qianfu	A study of the impact of internet-based instruction integrated innovation education on university student entrepreneurial team collaboration and strategic innovation
E. D. Boujut, Annika Grousselle, Amelie Cappe, Emilie	Comparative study of teachers in regular schools and teachers in specialized schools in france, working with students with an autism spectrum disorder: Stress, social support, coping strategies and burnout
E. D. Kissi, Kwaku Ahadzie Debrah, Caleb Adjei-Kumi, Theophilus	Underlying strategies for improving entrepreneurial skills development of technical and vocational students in developing countries: using Ghana as a case study
E. d. S. Boruchovitch, Acácia Aparecida Angeli	Psychometric studies of the Learning Strategies Scale for university students
E. E. W. Hall, Resa E. Hall, Katherine S.	Weight loss strategies used by first year college students: An exploratory study
E. G. E. Carayannis, Dan Hanson, Mike	A cross-cultural learning strategy for entrepreneurship education: Outline of key concepts and lessons learned from a comparative study of entrepreneurship students in France and the US
E. H. Bush, Karen Zickefoose, Samantha Simanek, Gina Holmberg, Michelle Henderson, Ambyr	Learning and study strategies of students with traumatic brain injury: A mixed method study
E. H. Henderson, H. Grant, A. Berlin, A.	Conflict and coping strategies: a qualitative study of student attitudes to significant event analysis
E. T. P. Goetz, Douglas J.	The role of students' perceptions of study strategy and personal attributes in strategy use
E. Y. Sendurur, Zahide	Students' web search strategies with different task types: An eye-tracking study
F. C. Lv, Hongxin	A study of metacognitive-strategies-based writing instruction for vocational college students
F. J. Sinkavich	Metamemory, attributional style, and study strategies: Predicting classroom performance in graduate students
F. R. R. Croft, P. Larueatuonah, S. Baechle, C. Gemmill, J.	Pilot investigation of validation of the modified learning and study strategies inventory (LASSI) for hearing-impaired preparatory students at Gallaudet

	university
F. Shaghaghi	Comparing the study methods of Iranian and American high school students from the perspective of cognitive and metacognitive strategies
F.-F. L. Zhao, Xiao-Ling He, Wei Gu, Yan-Hong Li, Dong-Wen	The study of perceived stress, coping strategy and self-efficacy of Chinese undergraduate nursing students in clinical practice
G. B. Kim, Jiyoung	A study into students' use of digital english learning strategies in tertiary education
G. M. M. Boulton-lewis, Ference Lewis, David C. Wilss, Lynn A.	A longitudinal study of learning for a group of indigenous Australian university students: Dissonant conceptions and strategies
G. Zhao	A cross-cultural study on the conflict management strategies between chinese and american college students
H. A.-S. Laine, Vera Haukkala, Ari Hankonen, Nelli	Acceptability of strategies to reduce student sitting: A mixed-methods study with college teachers
H. B. S. Sheu, W. E.	An exploratory study of help-seeking attitudes and coping strategies among college students by race and gender
H. B. Weber, Dominik Hillmert, Steffen	Information-seeking behaviour and academic success in higher education: Which search strategies matter for grade differences among university students and how does this relevance differ by field of study?
H. M. A.-M. Al-Kadri, Mohamed S. Al-Takroni, Habib Roberts, Chris van der Vleuten, Cees P. M.	Self-assessment and students' study strategies in a community of clinical practice: A qualitative study
H. M. A.-m. Al-Kadri, Mohamed S. Roberts, Chris Van der vleuten, Cees P.	Exploring assessment factors contributing to students' study strategies: Literature review
H. P. Yang, Xiaoping Zheng, Bo Wang, Linxian Wang, Yadong Du, Shuai Lu, Xinyi	A strategy study on risk communication of pandemic influenza: A mental model study of college students in Beijing
H. Sueki	Preferences for suicide prevention strategies among university students in Japan: a cross-sectional study using full-profile conjoint analysis
H.-B. S. Sheu, William E.	An exploratory study of help-seeking attitudes and coping strategies among college students by race and gender
I. Jackson	Development of a strategic framework for addressing the needs of students with disabilities in Sydney catholic schools (case study)
I. R. Alqarni	Saudi english major freshmen students' vocabulary learning strategies: an exploratory study
J. A. Subramanian, V. R.	Improving the quality of educational strategies in postgraduate dental

Morgaine, K. C. Thomson, W. M.	education using student and graduate feedback: findings from a qualitative study in New Zealand
J. B. Rankin, Val	brain-friendly study strategies, Grades 2-8: How teachers can help students learn
J. B. Rankin, Val	Creative teaching method as a learning strategy for student midwives: A qualitative study
J. Bolden	Associations among attention problems, learning strategies, and hazardous drinking behavior in a college student sample: A pilot study
J. C. King Ebrahimian	The effect of study skills instruction on the study strategies and attitudes of college students with learning disabilities
J. C. M. Turner, C. Meyer, D. K. Gheen, M. Anderman, E. M. Kang, Y. Patrick, H.	The classroom environment and students' reports of avoidance strategies in mathematics: A multimethod study
J. E. J. Ormrod, Lynn	Study strategies for learning spelling: Correlations with achievement and developmental changes
J. H. Kuo, Chris Miller, Michael T.	Encouraging college student success: The instructional challenges, response strategies, and study skills of contemporary undergraduates
J. J. Malmberg, Hanna Jarvela, Sanna	Tracing elementary school students' study tactic use in study by examining a strategic and self-regulated learning
J. J. P. B. Le Grange, Karel F. H.	The behavioural self-regulation strategies of Indian South African university students: An exploratory study
J. Jarvis	'Study in Estonia': the strategic implications of hosting international students on Estonia's tourism economy
J. K. P. Corkett, Rauno Hein, Serge F.	Learning and study strategies of university students who report a significant history of reading difficulties
J. L. Han, Qingsheng	A correlation study among achievement motivation, goal-setting and L2 learning strategy in EFL context
J. L. Vacek, Judy	Teaching concepts to nursing students using model case studies, the venn diagram, and questioning strategies
J. L.-K. Chwaszcz, Bernadeta Wiechetek, Michal Niewiadomska, Iwona Palacz-Chrisidis, Agnieszka	Personality traits, strategies for coping with stress and the level of internet addiction: A study of Polish secondary-school students
J. M. H. Williams, Kal Marcavage, Emily	Experimental study of assertion training as a drug prevention strategy for use with college students
J. M. M. Monteil, N.	Effects of context and performance feedback on social comparison strategies among low-achievement students: experimental studies
J. N. C. Erin, Anne L. Wolffe,	Learning and study strategies of secondary school students with visual

Karen	impairments
J. P. C. Szlachta	Peer instruction of first-year nurse anesthetist students: A pilot study of a strategy to use limited faculty resources and promote learning
J. P. Cioffi, N. Arundell, F.	A pilot study to investigate the effect of a simulation strategy on the clinical decision making of midwifery students
J. Park	The effects of perceived environmental factors and adolescents' motivation on achievement mediated through study strategy in the United States and Korea. (family value orientation, ego orientation, high school students)
J. R. Roca, Mercedes Canet, Olga	Learning outcomes of "The Oncology Patient" study among nursing students: A comparison of teaching strategies
J. R. S. Kirby, Robert Allingham, Beth H. Parrila, Rauno La Fave, Chantal B.	Learning strategies and study approaches of postsecondary students with dyslexia
J. S. Nijhuis, Mien Gijsselaers, Wim	The interplay of perceptions of the learning environment, personality and learning strategies: a study amongst International Business Studies students
J. S. Oh, Lorraine	Nursing students' preferences of strategies surrounding cinenurducation in a first year child growth and development courses: A mixed methods study
J. S. S. Krajcik, Patricia E. Lunetta, Vincent N.	A research strategy for the dynamic study of students' concepts and problem solving strategies using science software
J. Swafford	Comprehension strategies research and college developmental studies students
J. Szlachta	Peer instruction of first-year nurse anesthetist students: A pilot study of a strategy to use limited faculty resources and promote learning
J.-Y. W. Pan, Daniel Fu Keung	Acculturative stressors and acculturative strategies as predictors of negative affect among Chinese international students in Australia and Hong Kong: A cross-cultural comparative study
K. Bippert	Text engagement & reading strategy use: A case study of four early adolescent students
K. F. L. Hew, Chung Kwan	Comparing video styles and study strategies during video-recorded lectures: Effects on secondary school mathematics students' preference and learning
K. J. H. C. Dirkx, Gino Kester, Liesbeth Kirschner, Paul Arthur	Do secondary school students make use of effective study strategies when they study on their own?
K. J. P. M. S. B. Suda, Gillian C. PharmD Franks, Andrea S. PharmD	Faculty and student perceptions of effective study strategies and materials
K. K. Howard, Brian	Study tours: Strategies for serving business students
K. L. Hong-Nam, Alexandra G.	A comparative study of language learning strategy use in an EFL context: monolingual Korean and bilingual Korean-Chinese university students

K. L. Lueg, Rainer	Why do students choose English as a medium of instruction? A Bourdieusian perspective on the study strategies of non-native English speakers
K. M. Scully, Miguel	Peer influence strategies in collectively consumed products (events and festivals): An exploratory study among university students
K. M. T. O. Collins, A. J.	Study coping and examination-taking coping strategies: the role of learning modalities among female graduate students
K. N. Salmela-Aro, Jari-Erik	Achievement and social strategies during university studies and career characteristics 10 year later
K. R. Morehead, Matthew G. DeLozier, Sarah	Instructor and student knowledge of study strategies
K. S. Castleberry	Rationale and research concerning pre reading study strategies with secondary and college students
K. T. Salmela-Aro, Asko Nurmi, Jari-Erik	Achievement strategies during university studies predict early career burnout and engagement
K. W. Kovach, L. R.	Learning and study strategies, and performance anxiety in postsecondary students with learning disabilities: A preliminary study
K. W. Sutthinaraphan, Punchalee	A study of english communication strategy use of undergraduate students majoring in science
L. B. MacCullagh, Agnes Badcock, Nicholas A.	University students with dyslexia: A qualitative exploratory study of learning practices, challenges and strategies
L. B. MacCullagh, Agnes Badcock, Nicholas A.	University students with dyslexia: A qualitative exploratory study of learning practices, challenges and strategies
L. B. S. Bliss, Janice R.	The effects of institutional culture on study strategies of hispanic students as measured by the inventario de comportamiento de estudio, the spanish version of the study behavior inventory
L. C. Howell	The effect of learning styles, preferred intelligence, and study strategies on a student's preference for condensed or distributed instruction
L. Cheng	A study of Chinese engineering students' communication strategies in a mobile-assisted professional development course
L. G. Johnson, S. Harris, K. R.	The effects of goal setting and self-instruction on learning a reading comprehension strategy: A study of students with learning disabilities
L. Hirsto	Certainty of career choice at the beginning of university studies - general strategies and attributions in achievement situations, and career motives
L. I. Wilhelmi, Freya Steinhäuser, Jost	What leads to the subjective perception of a 'rural area'? A qualitative study with undergraduate students and postgraduate trainees in Germany to tailor strategies against physician's shortage
L. J. M.-P. Labrague, Denise M. Papathanasiou, Ioanna V. Edet,	Stress and coping strategies among nursing students: an international study

Olaide B. Tsaras, Konstantinos Leocadio, Michael C. Colet, Paolo Kleisiaris, Christos F. Fradelos, Evangelos C. Rosales, Rheajane A. Vera Santos-Lucas, Katherine Velacaria, Pearl Irish T.	
L. K. G. Fryer, Paul Walker, Richard	Reciprocal modelling of Japanese university students' regulation strategies and motivational deficits for studying
L. K.-Q. Anderson-Inman, Carolyn Horney, Mark A.	Computer-based study strategies for students with learning disabilities: Individual differences associated with adoption level
L. L. Huang, Wansheng Xu, Fuming Liu, Hairong Yu, Liang	Emotional responses and coping strategies in nurses and nursing students during Covid-19 outbreak: A comparative study
L. L. Newman	Test anxiety, study strategies, and exam performance in first year chiropractic students
L. M.-M. Jimenez-Taracido, Ana I.	Do students apply the learning strategies they report? Study of reading comprehension monitoring in scientific texts
L. R. M. Royanto	The effect of an intervention program based on scaffolding to improve metacognitive strategies in reading: a study of year 3 elementary school students in Jakarta
L. S. Westin, Annelie J. Berglund, Mia	Students' experiences of learning in relation to didactic strategies during the first year of a nursing programme: a qualitative study
L. S. Wolf, Andrea Warner Ross, Ratchneewan	Predictors of stress and coping strategies of US accelerated vs. generic baccalaureate nursing students: an embedded mixed methods study
L. Z. Zou, Ye	A study of english vocabulary learning strategies used by ethnic minority students in leshan normal university, Sichuan, China
M. A. D. Abulela, Earnest C., Jr.	Measurement invariance of the Learning and Study Strategies Inventory-second edition (LASSI-II) across gender and discipline in Egyptian college students
M. A. D. Casado, Mary I.	Effect of educational strategies on anxiety in the second language classroom: An exploratory comparative study between U.S. and Spanish first-semester university students
M. B. Koopman, Anouke Beijgaard, Douwe	Students' goal orientations and learning strategies in a powerful learning environment: A case study
M. B. Tower, Eddie Watson, Bernadette Heffernan, Catherine Tronoff, Glenyss	Using social media as a strategy to address 'sophomore slump' in second year nursing students: A qualitative study
M. C. W. C. Yip, Olive L. L.	Relation of study strategies to the academic performance of Hong Kong university students
M. C. Yip	Differences in learning and study strategies between high and low achieving

	university students: A Hong Kong study
M. C. Yip	Differences between high and low academic achieving university students in learning and study strategies: A further investigation
M. D. Samadi, Mehdi	A case study of the predicting power of cognitive, metacognitive and motivational strategies in girl students' achievements
M. E. Brewster	The effect of achievement motivation on fifth-grade students' choice of study strategies
M. E. G. Gredler, L. S.	Students' perceptions of their self-regulatory and other-directed study strategies: A factor analysis
M. F. Rauch, Ceil	Motivating students to use newly learned study strategies
M. Fitriana	Students' reading strategies in comprehending academic reading: a case study in an Indonesian private college
M. G. Gredler, L.	Students' perceptions of their self-regulatory and other-directed study strategies: A factor analysis
M. G. L. Ge, J.	Study on relationships between English learning strategies and academic achievement of middle school students
M. J. R. Khan, Seemab	Moderating role of learning strategies between meta-cognitive awareness and study habits among university students
M. K. O. Tallent-Runnels, Arturo Lotven, Ann C. Walsh, Sharon K. et al.,	A comparison of learning and study strategies of gifted and average-ability junior high students
M. L. Wijnen, Sofie M. M. Smeets, Guus Kroeze, Maarten van der Molen, Henk	Comparing problem-based learning students to students in a lecture-based curriculum: learning strategies and the relation with self-study time
M. M. K. Mitchell, C. M.	Coping strategies used by occupational-therapy students during fieldwork: an exploratory study
M. R. C. Ramos, Clare Reicher, Stephen Haslam, S. Alexander	A longitudinal study of the effects of discrimination on the acculturation strategies of international students
M. S. Emsaki, Shahla	Comparative study of terminating conversation strategies used by graduate TEFL students and graduate native English speaking students
M. S. Samuelstuen	Psychometric properties and item-keying direction effects for the Learning and Study Strategies Inventory-High School Version with Norwegian students
M. T. Prosser, Keith	Student evaluations of teaching and courses: student study strategies as a criterion of validity
M. Tsuei	The study of peer-assisted learning strategy system for elementary students
M. Z. M. Z. Yusoff, Nor Azan Mat	Exploring suitable emotion-focused strategies in helping students to regulate their emotional state in a tutoring system: Malaysian case study

N. I. Abouammoh, Farhana AlFaris, Eiad	Stress coping strategies among medical students and trainees in Saudi Arabia: a qualitative study
N. J. e. a. Entwistle	Student failure: disintegrated patterns of study strategies and perceptions of the learning environment
N. L. Hung Van, Wongsu Saengsuwan, Jiamjit Thinkhamrop, Bandit Wright, Pamela	The relationships between the use of self-regulated learning strategies and depression among medical students: An accelerated prospective cohort study
N. L. O. Howells, Holly K.	Diary study of sexual risk taking, alcohol use, and strategies for reducing negative affect in female college students
N. L. Xu, Yingyi	Coping strategy mediates the relationship between body image evaluation and mental health: A study with Chinese college students with disabilities
N. M. Ballenberger, Dirk Zalpour, Christoff	Musculoskeletal health complaints and corresponding risk factors among music students study process, analysis strategies, and interim results from a prospective cohort study
N. M. M. Ghoneim	The listening comprehension strategies used by college students to cope with the aural problems in EFL classes: an analytical study
N. M. M. Rao, B. E. Sachs, J.	Motivational beliefs, study strategies, and mathematics attainment in high- and low-achieving Chinese secondary school students
N. T. Imran, Khaula Fatima Pervez, Muhammad Ijaz Jawaaid, Masood Haider, Imran Ijaz	Medical students' stress, psychological morbidity, and coping strategies: a cross-sectional study from Pakistan
N. V. C. Volkova, V. A.	Career aspirations of undergraduates studying at some strategic occupational programs
N. V. Sanaie, Parvaneh Sedighi, Ladan Sadeghi, Bit	Comparing the effect of lecture and jigsaw teaching strategies on the nursing students' self-regulated learning and academic motivation: a quasi-experimental study
P. A. M. Alexander, P. Guan, Joseph	The learning and study strategies of highly able female students in Singapore
P. A. M. Alexander, P. Karen Woods, Bradford S. Duhon, Karen E. Parker, Dawn	College instruction and concomitant changes in students' knowledge, interest, and strategy use: a study of domain learning
P. A. S. O. Moreira, Joao Tiago Dias, Paulo Vaz, Filipa Machado Torres-Oliveira, Isabel	The students' perceptions of School Success Promoting Strategies Inventory (SPSI): development and validity evidence based studies
P. A. Solano, Andrea Caprino, Matilde Conigliaro, Claudia Giacomini, Gabriele Serafini, Gianluca Amore, Mario	The personal experience of severe suicidal behaviour leads to negative attitudes towards self- and other's suicidal thoughts and behaviours: A study of temperaments, coping strategies, and attitudes towards suicide among medical students
P. Adhikary	English language learning strategies adopted by bachelor level students (A

	case study of Nepal)
P. C. N. Rosario, Jose Valle, Antonio Gonzalez-Pianda, Julio Lourenco, Abilio	Grade level, study time, and grade retention and their effects on motivation, self-regulated learning strategies, and mathematics achievement: a structural equation model
P. M. D. Schulz, Carmel L. Burdett-Jones, Denise Gamble, Natalie S. Kosiak, Machellee M. Neal, Joclyn M. Baker, Gail E.	Evaluation of strategies designed to enhance student engagement and success of indigenous midwifery students in an away-from-base bachelor of midwifery program in australia: A qualitative research study
P. N. Forbus, John J. Mehta, Sanjay S.	A study of non-traditional and traditional students in terms of their time management behaviours, stress factors, and coping strategies
P. Syawal, Nasrullah, A. S. Ali Wira, Rahman	Good EFL learner's strategy In enhancing english mastery: a case study at indonesian college students
P. W. Whannell, Robert Allen, Bill	Investigating the influence of teacher strategies on academic self-efficacy and study behaviour of students in a tertiary bridging program
Q. S. Bukhsh, Abid Nisa, Muzammil	A study of learning stress and stress management strategies of the students of postgraduate level: a case study of islamia university of Bahawalpur, Pakistan
Q. Wang	Lexical inferencing strategies for dealing with unknown words in reading: a contrastive study between filipino graduate students and chinese graduate students
R. d. S. Ekuni, Bruno Miguel Nogueira Agarwal, Pooja K. Pompeia, Sabine	A conceptual replication of survey research on study strategies in a diverse, non-WEIRD student population
R. D. Zazkis, Ed Dautermann, Jennie	Coordinating visual and analytic strategies: a study of students' understanding of the group D_4
R. H. DeMarco, L. Lynch, M.	Nursing students' experiences with and strategic approaches to case-based instruction: a replication and comparison study between two disciplines
R. I. A.-M. Rabadi, Batoul	An empirical study on vocabulary learning strategies by jordanian FFL university students
R. J. Andreassen, Magne S. Braten, Ivar	Investigating self-regulated study strategies among postsecondary students with and without dyslexia: a diary method study
R. J. Andreassen, Magne S. Bråten, Ivar	Investigating self-regulated study strategies among postsecondary students with and without dyslexia: a diary method study
R. K. Sahragard, Yaser Abbasian, Reza	Field of study, learning styles, and language learning strategies of university students: are there any relations?
R. L. A. Ugla, Mohamad Jafre Zainol	A study of apology strategies used by Iraqi EFL university students
R. L. Petersen, Ellen Guarino, A. J.	The relationship between college students' executive functioning and study strategies

R. L. Steele, W. Caperchione, C. Anastasi, J.	An exploratory study of the concerns of mature access to nursing students and the coping strategies used to manage these adverse experiences
R. M. Herrero, Adriana Cormo, Giulia Etchemendy, Ernestina Banos, Rosa Garcia-Palacios, Azucena Ebert, David D. Franke, Marvin Berger, Thomas Schaub, Michael P. Goerlich, Dennis Jacobi, Corinna Botella, Cristina	An internet based intervention for improving resilience and coping strategies in university students: study protocol for a randomized controlled trial
R. T. H. Roessler, Mary L. Rumrill, Phillip D.	Strategies for improving career services for postsecondary students with disabilities: results of a focus group study of key stakeholders
S. B. H. Nolen, Thomas M.	Personal and environmental influences on students' beliefs about effective study strategies
S. B. H. Nolen, Thomas M.	A construct validation of measures of students' study strategy beliefs and perceptions of teacher goals
S. C. J. Ender, F. A. Novels, A. N. Moss, R. A. Wray, H.	College work study as an affirmative-action strategy promoting student involvement
S. F. E. S. Rovers, Renee E. van Merrienboer, Jeroen J. G. Savelberg, Hans H. C. M. de Bruin, Anique B. H.	How and why do students use learning strategies? A mixed methods study on learning strategies and desirable difficulties with effective strategy users
S. G. Nielsen	Strategies and self-efficacy beliefs in instrumental and vocal individual practice: a study of students in higher music education
S. J. Stoyloff	English language proficiency and study strategies as determinants of academic success for international students in U.S. universities
S. L. R. Simon-Dack, P. Dennis Marcum, Geoff D.	Study habits, motives, and strategies of college students with symptoms of ADHD
S. M. Bryant	The effects of visualization and verbalization as study strategies on middle school students' retention of defined concepts learned from expository text
S. M. F. Bacon, Michael D.	A study of the attitudes, motives, and strategies of university foreign language students and their disposition to authentic oral and written input
S. N. S. Mojarad, Somayeh AhmadiGatab, Teymor	Studying the effects of teaching cognitive and metacognitive strategies on self-efficacy and goal-selecting of orphan girl students
S. S. Hung-Bin, William E.	An exploratory study of help-seeking attitudes and coping strategies among college students by race and gender
S. S. Sutiayatno	A survey study: the correlation between metacognitive strategies and reading achievement
T. L. Uwatoko, Yan Sakata, Masatsugu Kobayashi, Daisuke	Healthy campus trial: a multiphase optimization strategy (MOST) fully factorial trial to optimize the smartphone cognitive behavioral therapy (CBT)

Sakagami, Yu Takemoto, Kazumi Collins, Linda M. Watkins, Ed Hollons, Steven D. Wason, James Noma, Hisashi Horikoshi, Masaru Kawamura, Takashi Iwami, Taku Furukawa, Toshi A.	app for mental health promotion among university students: study protocol for a randomized controlled trial
T. M. P. Chevalier, Rauno Ritchie, Krista C. Deacon, S. Hélène	The role of metacognitive reading strategies, metacognitive study and learning strategies, and behavioral study and learning strategies in predicting academic success in students with and without a history of reading difficulties
T. Mushoriwa	The study strategy: performance function among students in three teachers' colleges in Masvingo and Harare, Zimbabwe
T. S. Whetstone	Getting stripes: educational achievement and study strategies used by sergeant promotional candidates
U. V. M. Chinwe, Ikezu Uju Joy	Causes, effects and strategies for eradicating cultism among students in tertiary institutions in nigeria: a case study of nnamdi azikiwe university awka anambra state, nigeria
V. G. S. Spencer, T. E. Mastropieri, M. A.	Content area learning in middle school social studies classrooms and students with emotional or behavioral disorders: A comparison of strategies
V. M. Adams	Comparing paper-based and electronic outlining as a study strategy for mainstreamed students with learning disabilities
V. M. McInerney, Dennis M. Marsh, Herbert W.	Effects of metacognitive strategy training within a cooperative group learning context on computer achievement and anxiety: An aptitude-treatment interaction study
W. D. DeJong, Beth Schneider, Shari Kessel	Pregaming: An exploratory study of strategic drinking by college students in Pennsylvania
W. F. Geiser	Effects of learning-style awareness and responsive study strategies on achievement in, incidence of study of, and attitude toward mathematics of suburban eighth-grade
W. V. D. B. Tops, An Noens, Ilse Baeyens, Dieter	A multi-method assessment of study strategies in higher education students with an autism spectrum disorder
W.-P. Y. Chou, Cheng-Fang Liu, Tai-Ling	Predicting effects of psychological inflexibility/experiential avoidance and stress coping strategies for internet addiction, significant depression, and suicidality in college students: a prospective study
X. D. Z. Xu, Q. L. Chen, X. Y.	The experimental study of thinking strategy training about the effect on the ability of students in senior high school solving chemical calculation problems
X. Liu	The relationship between the depth of vocabulary knowledge and chinese MA students' use of vocabulary learning strategy and L2 contact in a study-abroad context
X. M. Zhu, Jianqing	A study on employability of contemporary chinese university students and improvement strategies

X. X. Chen, Gengsheng	A survey study of chinese college engineering students' use of metacognitive strategies in english writing
X. Z. Chen, D. J.	A study of the relationships among stressors in school work, coping strategies and psychological health in secondary school students
Y. C. Alshahrani, Lynette Rasmussen, Philippa	Undergraduate nursing students' strategies for coping with their first clinical placement: descriptive survey study
Y. Cai	A study on compliment response strategies by chinese college students
Y. W. Lee, Evelin	Teachers' intended classroom management strategies for students with ADHD: a cross-cultural study between South Korea and Germany
Y. W. Lee, Evelin	Teachers' accuracy in identifying ADHD status and their intended classroom management strategies for students with and without ADHD: a vignette study in South-Korea and Germany
Y.-C. J. Hsieh	The cross-cultural study on the effect of the use of student-generated visualization as a study strategy for middle school science concept learning
Y.-M. T. Lim, Cai-Lian Lee, Teck-Heang	Perceived stress, coping strategy and general health: a study on accounting students in malaysia
Z. Gan	Asian learners re-examined: an empirical study of language learning attitudes, strategies and motivation among mainland chinese and hong kong students
Z. L. Cao, Yuewu	A study on metacognitive strategy use in listening comprehension by vocational college students
Z. L. Rao, Fulan	Effect of academic major on students' use of language learning strategies: a diary study in a chinese context
Z. Zhou	The empirical study into the relation of the meta-cognitive strategy use and english achievement of college students

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<u>Author</u>	<u>Title</u>
A. A. Al-Emadi	The relationships among achievement, goal orientation, and study strategies
A. F. L. Hoffmann, Ruben Fernandez Liporace, Maria Mercedes	Psychometric analysis of the Learning and Study Strategies Inventory in college students
A. J. M. Elliot, H. A. Gable, S.	Achievement goals, study strategies, and exam performance: A mediational analysis
A. L. Freiberg Hoffmann, Ruben Fernandez Liporace, Maria Mercedes	Psychometric Analysis of the Learning and Study Strategies Inventory in College Students
A. M. Belshaw, Adam Phillips, Hannah Kay Rodrigues, Hannah	Comment on: creating assessments as an active learning strategy: what are students' perceptions? A mixed methods study

Russell, Andrew	
A. M. Meshbane, John D.	Effectiveness of a mnemonic study strategy for retention of geographic names and locations by college students
A. M. Persky	A four year longitudinal study of student learning strategies
A. R. Lorenzo	Comparative study on the performance of bachelor of secondary education (BSE) students in educational technology using blended learning strategy and traditional face-to-face instruction
B. R. Dawson	Textbook reading strategies used by "study strategies for college success" students in content courses during the following semesters
B. W. D. Bergey, S. Hélène Parrila, Rauno K.	Metacognitive reading and study strategies and academic achievement of university students with and without a history of reading difficulties
B. W. P. Bergey, Rauno K. Laroche, Annie Deacon, S.	Effects of peer-led training on academic self-efficacy, study strategies, and academic performance for first-year university students with and without reading difficulties
C. A. Baldwin	Achievement goals and exam performance: An exploration of the role of study strategies and anticipatory test anxiety
C. A. M. Christensen, D. R. Isaacs, P. J.	Cognitive strategies and study habits - An analysis of the measurement of tertiary students learning
C. D. Zepeda	Self-regulated learning in a college course: Examining student metacognitive study strategies, grit, self-efficacy, and performance
C. Gutierrez-Braojos	Future time orientation and learning conceptions: effects on metacognitive strategies, self-efficacy beliefs, study effort and academic achievement
C. J. Z. Fong, Linda Reichwein Ozel, Zeynep Ebrar Yetkiner Phelps, Julie M.	Between and within ethnic differences in strategic learning: a study of developmental mathematics students
C. Li	Study on the relationship among strategies in language learning, achievement motivation and academic scores of students in normal university
C. Magno	Assessing students' study strategies and achievement goals
C. Metzgen	College-student learning and study strategies: A cross-cultural study between Switzerland and the United States
D. F. Sacks	The effects of the direct instruction of study strategies on first year college students' strategy use
D. J. Eberling	A comparison of the effectiveness of study strategies instruction with community college students
D. J. O. Dickinson, D. Q. Dunn, J. S.	Distributed study, cognitive study strategies and aptitude on student learning
D. Jairam	Helping students soar to success on their computer: A mixed methods

	approach to investigate and test an integrated study strategy system for online prose
D. Watkins	Academic achievement and the congruence of study motivation and strategy
F. d. M. Van Overwalle, Machteld	The effects of attribution-based intervention and study strategy training on academic achievement in college freshmen
F. J. P. G.-P. Estrada, Francisco Javier Conde-Vélez, Sara	Learning styles in university students: Types of strategies, materials, supports, evaluation and performance. case study
F. Phillips	A research note on accounting students' epistemological beliefs, study strategies, and unstructured problem-solving performance
G. A. Hale	Students predictions of prose forgetting and the effects of study strategies
G. Erdamar	An investigation of student teachers' study strategies with respect to certain variables
G. Jean-Louis	Skill, will, and self-regulation: Assessing the learning and study strategies of university summer bridge program students
H. D. Mason	Learning and study strategies among first-year students at a south african university: A mixed methods study
H. I. B. Stromso, I. Samuelstuen, M. S.	Students' strategic use of multiple sources during expository text reading: A longitudinal think-aloud study
H. K. Jabbari, M. K. Heydari, M.	The comparatively study of student in the eye of locus of control, motivational beliefs,and self regulated learning strategies
H. M. A.-M. Al Kadri, Mohamed S. Elzubair, Margaret Magzoub, Mohi Eldien AlMutairi, Abdulrahman Roberts, Christopher van der Vleuten, Cees	Exploring factors affecting undergraduate medical students' study strategies in the clinical years: A qualitative study
H. N. Alkhateeb, Ramzi	Assessment of learning and study strategies of university students in Qatar using an arabic translation of the Learning and Study Strategies Inventory
H. P. Phan	Amalgamation of future time orientation, epistemological beliefs, achievement goals and study strategies: Empirical evidence established
I. O. Braten, B. S.	The learning and study strategies of Norwegian first-year college students
J. A. S. Lawrence, Ram P.	A study of teaching and testing strategies for a required statistics course for undergraduate business students
J. B. Biggs	Motivation to learn and students study strategies
J. B. L. Kurtz, Michael A. Holman, Elizabeth E. Grob, Karri L. Monrad, Seetha U.	Creating assessments as an active learning strategy: what are students' perceptions? A mixed methods study

J. Biggs	A comparison of student motivation and study strategies in CAE and university populations
J. C. Moore	Cognitive, learning and study strategy predictors of student-athlete academic success and academic progress rates
J. D. B. Karpicke, Andrew C. Roediger, Henry L., III	Metacognitive strategies in student learning: Do students practise retrieval when they study on their own?
J. M. Oliver	The relationship between learning/study strategies and gains in algebra i competency among developmental mathematics students
J. N. Laakkonen, Anne	Relationships between learning strategies, stress, and study success among first-year veterinary students during an educational transition phase
J. O. Mäkinen, Erkki	University students' situational reaction tendencies: reflections on general study orientations, learning strategies, and study success
J. R. B. King, Shirley Lipsky, Sally	Students' self-questioning and summarizing as reading study strategies
J. S. Martinezguerrero, J. J.	Learning strategies - predictive analysis of study habits on college students academic performance
J. S. Sriram	Enabling students to learn: design, implementation and assessment of a supplemental study strategies course for an introductory undergraduate biology course
J. V. Ferla, Martin Schuyten, Gilberte	Relationships between student cognitions and their effects on study strategies
K. R. Francom	Achievement motivation and study strategies of graduate students: testing boundary conditions of theoretical constructs
K. T. R. Rugsaken, Jacqueline A. Jones, James A.	Using the learning and study strategies inventory scores as additional predictors of student academic performance
L. A. B. Flowers, Brian K. Moore, James L., III	Concurrent validity of the Learning and Study Strategies Inventory (LASSI): A study of African American pre college students
L. B. Hodo	The effects of study skills instruction on achievement and usage of selected study strategies in Algebra II classes
L. M. Chen, Jianqing	Empirical Study on Incentive Education Strategies for College Students in Social Transition Period
L. M. S. Ramjan, Lyn Salamonson, Yenna Morris, Maureen M. Armstrong, Lyn Sanchez, Paula Flannery, Liz	Identifying strategies to assist final semester nursing students to develop numeracy skills: A mixed methods study
L. P. Franciosi	Problem-solving appraisal, self-reported study strategies, and academic performance of first-year college students
M. A. Dahlgren	Portraits of PBL: Course objectives and students' study strategies in computer

	engineering, psychology and physiotherapy
M. E. Ross	The effects of student expectations about the cognitive complexity of test items on study strategies and on memorization and cognitively complex test item performance
M. K. McAndrew, Rajit S. Pierre, Gaelle C.	Do dental students use optimal study strategies?
M. L. N. Simpson, Sherrie L.	Textbook annotation: an effective and efficient study strategy for college students
M. L. Smith	A quantitative analysis of critical thinking abilities, learning and study strategies, and academic achievement in associate degree nursing students
M. M. M. Cavamura Endo, Fabiano Koich Kienen, Nadia	The learning and study strategies of Norwegian first-year college students
M. Nebres	Training in summarizing notes: Effects of teaching students a self-regulation study strategy in science learning
M. P. V.-G. Deming, Maria Idleman, Lynda S.	The reliability and validity of Learning and Study Strategies Inventory (LASSI) with college developmental students
M. R.-G. Ruiz-López, Marta Villanueva, Purificación-González Márquez-Cava, Montserrat García-Mateos, Mónica Ruiz-Ruiz, Beatriz Herrera-Sánchez, Esteban	The use of reflective journaling as a learning strategy during the clinical rotations of students from the faculty of health sciences: An action-research study
M. V. S. Pinxten, Carolien Peeters, Christine De Laet, Tinne Langie, Greet	At-risk at the gate: Prediction of study success of first-year science and engineering students in an open-admission university in Flanders-any incremental validity of study strategies?
O. J. Ehindero	A discriminant function analysis of study strategies, logical reasoning ability and achievement across major teacher undergraduate curricula
O. O. Z. Adesope, Mingming Nesbit, John C.	Achievement goal orientations and self-reported study strategies as predictors of online studying activities
S. B. H. Nolen, T. M.	Personal and environmental influences on students beliefs about effective study strategies
S. H. M. Moon, Sun Jung Yoon, Hyun Bae Park, Jun-Bean Kim, Ju Whi Park, Wan Beom	Deliberate practice as an effective remediation strategy for underperforming medical students focused on clinical skills: a prospective longitudinal study
S. K. Grimes	Targeting academic programs to student diversity utilizing learning styles and learning-study strategies
T. G. Jakubowski	Social-cognitive factors associated with the academic self-regulation of undergraduate college students in a learning and study strategies course

U. W. Isik, Janneke Croiset, Gerda Kusurkar, Rashmi A.	The role of study strategy in motivation and academic performance of ethnic minority and majority students: A structural equation model
U. W. Schiefele, K. P. Winteler, A.	Amount of learning and elaboration strategies as mediators of the relation between study interest and achievement
Y. E. Salamonson, Bronwyn Koch, Jane Wilson, Ian Davidson, Patricia M.	Learning strategies of first year nursing and medical students: A comparative study

Excluded articles from manual search abstract screen

<u>Author</u>	<u>Title</u>
Pan JY, Wong DF	Acculturative stressors and acculturative strategies as predictors of negative affect among Chinese international students in Australia and Hong Kong: a cross-cultural comparative study
Jacob B, Peasah SK	An Elective Course for Student Pharmacists on Pharmaceutical Industry Practice
AACN	AACN practice guidelines for neuropsychological assessment and consultation. Clinical Neuropsychology
Advokat C, Lane SM, Luo C	College students with and without ADHD: Comparison of self-report of medication usage, study habits, and academic achievement
Afflerbach, P., Pearson, P. D., & Paris, S. G.	Clarifying differences between reading skills and reading strategies
Agar, D. L. and Knopfmacher, N.	The Learning and Study Strategies Inventory: A South African application
Allen, G. J., Lerner, W. M., Hinrichsen, J. J.	Study behaviors and their relationships to test anxiety and academic performance
Andrews, J., Violato, C., Rabb, K., & Hollingsworth, M.	A validity study of Biggs' three-factor model of learning approaches: A confirmatory factor analysis employing a Canadian sample
Arbuckle, J. L.	Amos user guide
Bandura A.	Social Foundations of Thought and Action: A Social Cognitive Theory
Roghayeh Gandomkar, Kamran Yazdani, Ladan Fata, Ramin Mehrdad, Azim Mirzazadeh, Mohammad Jalili, John Sandars	Using multiple self-regulated learning measures to understand medical students' biomedical science learning
A. J., & McGregor, H. A.	A 2×2 achievement goal framework
ACPE	Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree

Agboola SO, Bates DW, Kvedar JC.	Digital health and patient safety
Albard, K. E., & Lipschultz, R. E.	Self-regulated learning in high-achieving students: relations to advanced reasoning, achievement goals, and gender
Alexander, P. A.	The development of expertise: the journey from acclimation to proficiency
Alexander, P. A.	Evolution of a learning theory: A case study
Alkhasawneh E.	Using VARK to assess changes in learning preferences of nursing students at a public university in Jordan: Implications for teaching
Alkhasawneh IM, Mrayyan MT, Docherty C, Alashram S, Yousef HY.	Problem-based learning (PBL): Assessing students' learning preferences using VARK
Allen LM III, Conder RL, Green P, Cox DR.	Manual for the computerized assessment of response bias
Allen, G. J., Lerner, W. M. and Hinrichsen, J. J.	Study behaviors and their relationships to test anxiety and academic performance
American Psychiatric Association	The diagnostic and statistical manual of mental disorders: DSM-5
Ames, C.	Classrooms: goals, structures and student motivation
Angelo TA, Cross KP.	Classroom Assessment Techniques: A Handbook for College Teachers
APA	Guidelines and principles for accreditation of programs in professional psychology: Quick reference guide to doctoral programs
Aquino LB.	Study habits and attitudes of freshmen students: Implications for academic intervention programs
Armbruster, B. B., Anderson, T. H.	Research synthesis on study skills
Bandura A.	Social cognitive theory of self-regulation
Bangert-Downs RL, Kulik JA, Kulik CLC.	Effects of frequent classroom testing
Barger JB.	How do undergraduate students study for anatomy and does it matter?
Barrash J, Stillman A, Anderson SW, Uc Y, Dawson JD, Rizzo M.	Prediction of driving ability with neuropsychological tests: Demographic adjustments diminish accuracy
Barron, K., & Harackiewicz, J.	Achievement goals and optimal motivation: testing multiple goal models
Bartosz Gębka	Psychological determinants of university students' academic performance: An empirical study

Bashshur RL, Shannon G, Krupinski EA, Grigsby J.	Sustaining and realizing the promise of telemedicine
Beate Schuster, Udo Rudolph, Friedrich Forsterling	What Determines Behavioral Decisions? Comparing the Role of Covariation Information and Attributions
Benedict RH, Schretlen D, Groninger L, Brandt J.	Hopkins Verbal Learning Test—Revised: Normative data and analysis of inter-form and test-retest reliability
Benedict RH.	Brief visuospatial memory test—revised: Professional manual
Benton AL, de Hamsher KS, Varney NR, Spreen O.	Contributions to neuropsychological assessment: A clinical manual
Benton L, de Hamsher K, Sivan A.	Multilingual Aphasia Examination
Bernard, R. M., Abrami, P. C., Lou, Y., Borokhovski, E., Wade, A. Wozney, L.	How does distance education compare with classroom instruction? A meta-analysis of the empirical literature
Berthelson L, Mulchan SS, Odland AP, Miller LJ, Mittenberg W.	False positive diagnosis of malingering due to the use of multiple effort tests.
Bette Davidowitz, Marissa Rollnick, Marissa Rollnick	Adjustment of Under-Prepared Students to Tertiary Education
Bianchini KJ, Mathias CW, Greve KW.	Symptom validity testing: A critical review
Biggs, J. B.	Individual and group differences in study processes
Biggs, J. B..	The role of metalearning in study processes
Biggs, J. B.	Study process questionnaire manual. Student approaches to learning and studying
Biggs, J. B.	Dimensions of study behaviour: Another look at A.T.I.
Bigler ED	Limitations with symptom validity, performance validity, and effort tests
Bigler ED.	Symptom validity testing, effort, and neuropsychological assessment
Bigler ED.	Use of symptom validity tests and performance validity tests in disability determinations
Bilder RM, Sugar CA, Helleman GS.	Cumulative false positive rates given multiple performance validity tests: Commentary on Davis and Millis (2014) and Larrabee (2014)
Binder LM, Iverson GL, Brooks BL.	To err is human: “Abnormal” neuropsychological scores and variability are common in healthy adults
Binder LM, Villanueva MR, Howieson D, Moore RT.	The Rey AVLT recognition memory task measures motivational impairment after mild head trauma

Binder LM, Willis SC.	Assessment of motivation after financially compensable minor head trauma
Binder LM.	Portland Digit Recognition Test manual—second edition
Bjork R	Assessing our own competence: heuristics and illusions.
Bjork R.	Memory and metamemory considerations in the training of human beings
Bjork RA, Bjork EL.	Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning
Bodenheimer T, Sinsky C.	From triple to quadruple aim: care of the patient requires care of the provider
Boekaerts M, Corno L.	Self-regulation in the classroom: a perspective on assessment and intervention
Boekaerts, M. (1997).	Self-regulated learning: a new concept embraced by researchers, policy makers, educators, teachers and students
Bollen, K. A. (1989).	Structural equations with latent variables
Boone KB, Lu P, Back C, King C, Lee A, Philpott L, Shamieh E, Warner-Chacon K.	Sensitivity and specificity of the Rey Dot Counting Test in patients with suspect effort and various clinical samples
Boone KB, Lu P, Wen J.	Comparison of various RAVLT scores in the detection of non-credible memory performance
Boone KB, Lu P.	Non-forced-choice effort measures
Boone KB, Lu PH, Herzberg D.	The B Test manual
Boone KB.	Assessment of feigned cognitive impairment: A neuropsychological perspective
Boone KB.	Selection and use of multiple performance validity tests (PVTs)
Boone KB.	The need for continuous and comprehensive sampling of effort/response bias during neuropsychological examinations
Boud D, Molloy E.	Rethinking models of feedback for learning: the challenge of design
Brandt J, Benedict RH.	Hopkins Verbal Learning Test, Revised: Professional manual
Brandt J, van Gorp W.	American Academy of Clinical Neuropsychology policy on the use of non-doctoral-level personnel in conducting clinical neuropsychological evaluations
Breckler J, Joun D, Ngo H.	Learning styles of physiology students interested in the health professions.
Brew, C. R.	Kolb's learning style instrument: sensitive to gender
Broekkamp, J., van Hout-Wolters, B., Rijlaarsdam, G., & van den Bergh, H.	Importance in instructional text: Teachers' and students' perceptions of task demands

Brophy, J.	Goal theorists should move on from performance goal
Brouwers, S. A., van Hemert, D. A., Breugelmans, S. M. and van de Vijver, F. J. R.	A historical analysis of empirical studies published in the Journal of Cross-Cultural Psychology 1970–2004
Brown, A.	Metacognition, executive control, self-regulation and other more mysterious mechanisms
Browne, M. W., & Cudeck, R.	Alternative ways of assessing model fit
Busch RM, Chelune GJ, Suchy Y.	Using norms in neuropsychological assessment of the elderly
Bush SS, Ruff RM, Tröster AI, Barth JT, Koffler SP, Pliskin NH, Reynolds CR, Silver CH.	Symptom validity assessment: Practice issues and medical necessity
Butler A, Karpicke J, Roediger H.	Correcting a metacognitive error: feedback increases retention of low-confidence correct responses
Butler DL, Winne PH.	Feedback and self-regulated learning: a theoretical synthesis
C. Ward Struthers, Raymond P. Perry	Attributional style, attributional retraining, and inoculation against motivational deficits
Caballos, A. M. and Esteban, A.	Study skills and problem-solving strategies in Spanish students
Cannon, R. and Newble, D.	Handbook for teachers in universities and colleges: A guide to improving teaching methods
Cantwell, R. H., & Moore, P. J.	The development of measures of individual differences in self-regulatory control and their relationship to academic performance
Carone DA.	Children with moderate/severe brain damage/dysfunction outperform adults with mild-to-no brain damage on the Medical Symptom Validity Test
Carr M, Borkowski JG, Maxwell SE.	Motivational components of underachievement
Carroll, J. B.	Human cognitive abilities: a survey of factor analytic studies
Carrow-Woolfolk E.	Comprehensive Assessment of Spoken Language
Carver, C. S., & Scheier, M. F.	Attention and self-regulation: A control theory approach to human behavior
Case J, Gunstone R.	Metacognitive development as a shift in approach to learning: an in-depth study
Centre for Research in Distance and Adult Learning	Distance and Open Virtual Learning Environment Scale (DOVILES)
Chafetz MD, Abrahams JP, Kohlmaier J.	Malingering on the Social Security disability consultative exam: A new rating scale

Chafetz MD, Underhill J.	Estimated costs of malingered disability
Chafetz MD.	Malingering on the Social Security disability consultative exam: Predictors and base rates
Chafetz MD.	The psychological consultative examination for Social Security disability
Chen, C., Stevenson, H. W., Hayward, C. and Burgess, S.	Culture and academic achievement: Ethnic and cross-national differences
Chris Masui, Erik Corte	Learning to reflect and to attribute constructively as basic components of self-regulated learning
Claxton CS, Ralston Y. 1978.	Learning Styles: Their Impact on Teaching and Administration
Coffield F, Moseley D, Hall E, Ecclestone K.	Should we be Using Learning Styles: What Research Has to Say to Practice
Conder R, Allen L, Cox D.	Computerized Assessment of Response Bias test manual
Connie S.K. Poon, Derek J. Koehler,	Lay personality knowledge and dispositionist thinking: A knowledge-activation framework
Corno L.	The metacognitive control components of self-regulated learning
Covington, M. V.	Motivated cognition
Covington, M. V.	Strategic thinking and the fear of failure
Craik, F. I. M., & Lockhart, R. S.	Levels of processing: A framework for memory research
Cross, D. R., & Paris, S. G.	Developmental and instructional analysis of children's metacognition and reading comprehension
Crowe A, Dirks C, Wenderoth MP.	Biology in Bloom: implementing Bloom's taxonomy to enhance student learning in biology
D'Ydewalle, G., Swerts, A., & De Corte, E.	Study time and test performance as a function of test expectations
Daempfle PA.	An analysis of the high attrition rates among first year college science, math, and engineering majors
Darrell Anthony Luzzo, William E. Hitchings, Paul Retish, Andrew Shoemaker	Evaluating Differences in College Students' Career Decision Making on the Basis of Disability Status
David Le Foll, Olivier Rasclé, N.C. Higgins	Attributional feedback-induced changes in functional and dysfunctional attributions, expectations of success, hopefulness, and short-term persistence in a novel sport
Davidson A, Ritchie KL.	The early bird catches the worm! The impact of chronotype and learning style on academic success in university students

Davis JJ, Millis SR.	Examination of performance validity test failure in relation to number of tests administered
Dean AC, Victor TL, Boone KB, Arnold G.	The relationship of IQ to effort test performance
Dekker S, Lee NC, Howard-Jones P, Jolles J.	Neuromyths in education: Prevalence and predictors of misconceptions among teachers
Delis D, Kaplan E, Kramer J.	Delis-Kaplan executive function system
Delis DC, Kramer JH, Kaplan E.	California Verbal Learning Test: CVLT-II; adult version; manual
Dembo MH, Seli HP.	Students' resistance to change in learning strategies courses
Department of Health and Social Care (UK)	Securing cyber resilience in health and care: Progress update
DeRight J, Carone DA.	Assessment of effort in children: A systematic review
Dinsmore DL, Alexander PA, Loughlin SM.	Focusing the conceptual lens on metacognition, self-regulation, and self-regulated learning
Diseth, Å. and Martinsen, Ø.	Approaches to learning, cognitive style, and motives as predictors of academic achievement
Donovan J, Radosevich D.	A meta-analytic review of the distribution of practice effect: now you see it, now you don't
Douglas Campbell, Andrew Hussey	Experimental evidence of the effects of an early intervention programme on economics student achievement
Dupeyrat, C., & Martiné, C.	Implicit theories of intelligence, goal orientation, cognitive engagement, and achievement: a test of Dweck's model with returning to school adults
Dweck, C. S.	Motivational processes affecting learning
Dweck, C., & Leggett, E.	A social-cognitive approach to motivation and personality
Edmonds EC, Delano-Wood L, Galasko DR, Salmon DP, Bondi MW.	Subjective cognitive complaints contribute to misdiagnosis of mild cognitive impairment
Efklides, A., & Petkaki, C.	Effects of mood on students' metacognitive experiences
Eilam B, Reiter S.	Long-term self-regulation of biology learning using standard junior high school science curriculum
Elliot, A. J.	Achievement goals and approach-avoidance motivation
Elliot, A. J.	A conceptual history of the achievement goal construct
Elliot, A. J., & Church, M. A.	A hierarchical model of approach and avoidance achievement motivation
Elliot, A. J., & Murayama, K.	On the measurement of achievement goal: Critique, illustration, and

	application
Elliot, & C. S. Dweck (Eds.)	Handbook of competence and motivation (pp. 52–72)
Elliott R.	Executive functions and their disorders
Elshout-Mohr, M.	Metacognition of learners in teaching-learning processes
Elshout-Mohr, M., Meijer, J., van Daalen-Kapteijns, M. M., & Meeus, W.	Joint Research into the AILI (Awareness of Independent Learning Inventory)
enko, C., & Miles, K. M.	Pursuing their own learning agenda: How mastery-oriented students jeopardize their class performance
Entwistle, N., & McCune, V.	The conceptual bases of study strategy inventories
Entwistle, N.	Motivational factors in students' approaches to learning
Entwistle, N. and Waterston, S.	Approaches to studying and levels of processing in university students
Entwistle, N. J.	Understanding academic performance at university: A research retrospective
Entwistle, N. J. and Ramsden, P.	Understanding student learning
Entwistle, N. J. and Waterston, S.	Approaches to studying and levels of processing in university students
Entwistle, N., & Entwistle, D.	Preparing for examinations: The interplay of memorizing and understanding, and the development of knowledge objects
Ertmer PA, Newby TJ.	The expert learner: strategic, self-regulated, and reflective
Etherton JL, Bianchini KJ, Ciota MA, Greve KW.	Reliable Digit Span is unaffected by laboratory-induced pain: Implications for clinical use
Etherton JL, Bianchini KJ, Greve KW, Ciota MA.	Test of Memory Malingering performance is unaffected by laboratory-induced pain: Implications for clinical use
Etkin A, Gyurak A, O'Hara R.	A neurobiological approach to the cognitive deficits of psychiatric disorders
Farias ST, Mungas D, Jagust W.	Degree of discrepancy between self and other reported everyday functioning by cognitive status: Dementia, mild cognitive impairment, and healthy elders
Faust D, Hart K, Guilmette T, Arkes H.	Neuropsychologists' capacity to detect adolescent malingerers
Felder RM, Brent R.	The intellectual development of science and engineering students. Part 1: models and challenges
Feldt, R. C., & Ray, M.	Effect of test expectancy on preferred study strategy use and test performance
Felicilda-Reynaldo RF, Cruz JP, Bigley L, Adams K.	Baccalaureate student nurses' study habits prior to admission to nursing program: A descriptive qualitative study

Fenollar,P., Roman, S., & Cuestas, P. J.	University students academic performance:An integrative conceptual framework and empirical analysis
FERPA	Family Educational Rights and Privacy Act
Field A.	Discovering Statistics Using SPSS. 3rd Ed
Fitch ML, Drucker AJ, Norton JA.	Frequent testing as a motivating factor in large lecture courses
Fitkov-Norris ED, Yeghiazarian A.	Measuring study habits in higher education: The way forward?
Fitkov-Norris ED, Yeghiazarian A.	Validation of VARK learning modalities questionnaire using Rasch analysis
Fjortoft, N. F.	Persistence in a distance learning program: A case in pharmaceutical education
Flavell, J. H.	Metacognition and cognitive monitoring: a new area of cognitive-developmental inquiry
Flavell, J. H., & Wellman, H. M.	Metamemory
Fleming ND, Baume D.	Learning styles again: VARKing up the right tree!
Fleming ND, Mills C.	Not another inventory, rather a catalyst for reflection
Fleming ND.	I'm different; not dumb. Modes of presentation (VARK) in the tertiary classroom
Fleming ND.	The case against learning styles: "There is no evidence..."
Fleming ND.	Facts, fallacies and myths: VARK and learning preferences
Fleming, K., Ross, M., Tollefson, N., & Green, S. B.	Teachers' choices of test-item formats for classes with diverse achievement levels
Foos, P. W.	Test performance as a function of expected form and difficulty
Foos, P. W., & Clark, M. C.	Learning from text: Effects of input order and expected test
Fowler FJ Jr.	Improving Survey Questions: Design and Evaluation
Frederick RI, Foster HG.	Multiple measures of malingering on a forced-choice test of cognitive ability
Frederick RI.	Validity indicator profile manual
Freedman D, Manly J.	Use of normative data and measures of performance validity and symptom validity in assessment of cognitive function
Funahashi S.	Neuronal mechanisms of executive control by the prefrontal cortex
Gadzella, B. M., Williamson, J. D.	Study skills, self-concept, and academic achievement

Garavalia L, Scheuer D, Carroll C.	Comparative analysis of first- and third-year pharmacy students' perceptions of student-regulated learning strategies and motivation
Garcia Duncan, T., & McKeachie, W. J.	The making of the motivated strategies for learning questionnaire
Gardner, H.	Frames of mind: the theory of multiple intelligences
Gasiewski JA, Eagan MK, Garcia GA, Hurtado S, Chang MJ.	From gatekeeping to engagement: a multicontextual, mixed method study of student academic engagement in introductory STEM courses
Gast J, Hart KJ.	The performance of juvenile offenders on the Test of Memory Malingering
Gervais RO, Rohling ML, Green P, Ford W.	A comparison of WMT, CARB, and TOMM failure rates in non-head injury disability claimants
Gibson, C. C.	The distance learner in context
Ginger Clark, John J. Horan, Amy Tompkins-Bjorkman, Theresa Kovalski, Gail Hackett,	Interactive Career Counseling on the Internet
Goldman, R. D. and Warren, R.	Discriminant analysis of study strategies connected with college grade success in different major fields
Goodglass H, Kaplan E.	Boston diagnostic aphasia examination
Goudsmit, E.	Interviews concerning effort investment and strategy use for Introduction to Psychology
Grant, H., & Dweck, C. S.	Clarifying achievement goals and their impact
Graue LO, Berry DT, Clark JA, Sollman MJ, Cardi M, Hopkins J, Werline D.	Identification of feigned mental retardation using the new generation of malingering detection instruments: Preliminary findings
Green P, Allen L, Astner K.	The Word Memory Test: A user's guide to the oral and computer-administered form
Green P.	Green's Memory Complaints Inventory (MCI)
Green P.	Manual for Nonverbal Medical Symptom Validity Test
Green, S. B., Salkind, N. J., & Akey, T. M.	Using SPSS for Windows: Analyzing and understanding data (2nd ed.)
Greiffenstein M, Gervais R, Baker WJ, Artiola L, Smith H.	Symptom validity testing in medically unexplained pain: A chronic regional pain syndrome type 1 case series
Greiffenstein MF, Baker WJ, Gola T.	Validation of malingered amnesia measures with a large clinical sample
Greve KW, Bianchini KJ.	Setting empirical cutoffs on psychometric indicators of negative response bias: A methodological commentary with recommendations

Griffin GA, Normington J, May R, Glassmire D.	Assessing dissimulation among Social Security disability income claimants
Gronwall D.	Paced auditory serial-addition task: A measure of recovery from concussion
Grote LG, Hook JN.	Forced-choice recognition tests of malingering
Groth-Marnat G.	Handbook of psychological assessment
Hadwin AF, Winne PH, Stockley DB, Nesbit JC, Woszczyzna C.	Context moderates students' self-reports about how they study
Hakstian, A. R.	The effects of the type of examination anticipated on test preparation and performance
Hammill DD, Larsen SC.	Test of written language: Examiner's manual
Hampson NE, Kemp S, Coughlan AK, Moulin CJ, Bhakta BB.	Applied Neuropsychology: Adult
Harackiewicz, J. M., Barron, K. E., & Elliot, A. J.	Rethinking achievement goals: when are they adaptive for college students and why
Harackiewicz, J. M., Barron, K. E., Tauer, J. M., Carter, S. M., & Elliot, A. J.	Short-term and long-term consequences of achievement goals: Predicting interest and performance over time
Harackiewicz, J., Barron, K., Pintrich, P., Elliot, A., & Thrash, T.	Revision of achievement goal theory: necessary and illuminating.
Hawk TF, Shah AJ.	Using learning style instruments to enhance student learning
Hayes, A. F.	PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling
Haynes, N. M., Comer, J. P. and Hamilton-Lee, M.	Gender and achievement status differences on learning factors among black high school students
Haynes, N. M., Comer, J. P., Hamilton-Lee, M., Boger, J. and Joyner, E.	Differences among high, average, and low high school achievers on the Learning and Study Strategies Inventory
Heaton RK, Grant I, Matthews CG.	Comprehensive norms for an expanded Halstead-Reitan Battery: Demographic corrections
Heaton RK, Smith HH, Lehman RA, Vogt AT.	Prospects for faking believable deficits on neuropsychological testing
Heaton RK, Taylor M, Manly J.	Demographic effects and demographically corrected norms with the WAIS-III and WMS-III
Heaton RK.	Wisconsin Card Sorting Test: Computer version 2

Heilbronner RL, Sweet JJ, Morgan JE, Larrabee GJ, Millis SR.	Conference Participants
Higginson CI, Lanni K, Sigvardt KA, Disbrow EA.	The contribution of trail making to the prediction of performance-based instrumental activities of daily living in Parkinson's disease without dementia
Hiscock M, Hiscock CK.	Refining the forced-choice method for the detection of malingering
HNS (Houston Neuropsychological Society).	The Houston Conference on Specialty Education and Training in Clinical Neuropsychology policy statement
Höffler TN, Koć -Januchta M, Leutner D.	More evidence for three types of cognitive style: Validating the object-spatial imagery and verbal questionnaire using eye tracking when learning with texts and pictures
Holdnack JA, Drozdick LW.	Advanced clinical solutions for WAIS-IV and WMS-IV: Clinical and interpretive manual
McGrew S, Smith M, Breakstone J, Ortega T, Wineburg S.	Improving university students' web savvy: An intervention study
Theis D, Sauerwein M, Fischer N.	Perceived quality of instruction: The relationship among indicators of students' basic needs, mastery goals, and academic achievement
Hertel S, Karlen Y.	Implicit theories of self-regulated learning: Interplay with students' achievement goals, learning strategies
Palsola M, Renko E, Kostamo K, Lorencatto F, Hankonen N.	Thematic analysis of acceptability and fidelity of engagement for behaviour change interventions: The Let's Move It intervention interview study
Frie K, Hartmann-Boyce J, Jebb SA, Aveyard P.	Effectiveness of a self-regulation intervention for weight loss: A randomized controlled trial
O'Connor KJ.	Should I Give the Exam Before or After the Break?
Balch WR.	Practice versus Review Exams and Final Exam Performance
Phan HP.	Empirical model and analysis of mastery and performance-approach goals: A developmental approach.
Huang C.	Achievement goals and achievement emotions: A meta-analysis
Watkins D.	Teachers as scholars of their students' conceptions of learning: a Hong Kong investigation
Meece JL, Anderman EM, Anderman LH.	Classroom goal structure, student motivation, and academic achievement
Tapola A, Niemvirta M.	The role of achievement goal orientations in students' perceptions of and preferences for classroom environment
Cano F, Berbén ABG.	University students' achievement goals and approaches to learning in mathematics

Advokat C, Lane SM, Luo C.	College students with and without ADHD: comparison of self-report of medication usage, study habits, and academic achievement
Burgoon JM, Meece JL, Granger NA.	Self-efficacy's influence on student academic achievement in the medical anatomy curriculum
Shek DTL, Cheung BPM.	Developmental issues of university students in Hong Kong
Shek DTL, Yu L, Ma CMS, Sun RCF, Liu TT.	Development of a credit-bearing service leadership subject for university students in Hong Kong
Fredieu JR, Snyder CW.	Positive impact of a master of science in applied anatomy program on USMLE Step 1 performance
Snyder JJ, Carter BE, Wiles JR.	Implementation of the peer-led team-learning instructional model as a stopgap measure improves student achievement for students opting out of laboratory
Stanton JD, Neider XN, Gallegos IJ, Clark NC.	Differences in metacognitive regulation in introductory biology students: when prompts are not enough
Ghosh SJ.	Cadaveric dissection as an educational tool for anatomical sciences in the 21st century
Langlois J, Bellemare C, Toulouse J, Wells GA.	Spatial abilities and anatomy knowledge assessment: A systematic review
Choi-Lundberg DL, Cuellar WA, Williams AM.	Online dissection audio-visual resources for human anatomy: Undergraduate medical students' usage and learning outcomes
Panadero E.	A Review of Self-regulated Learning: Six Models and Four Directions for Research
van Houten-Schat MA, Berkhout JJ, van Dijk N, Endedijk MD, Jaarsma ADC, Diemers AD.	Self-regulated learning in the clinical context: a systematic review
Duckworth AL, Taxer JL, Eskreis-Winkler L, Galla BM, Gross JJ.	Self-Control and Academic Achievement
Kuhbandner C, Emmerdinger KJ.	Do students really prefer repeated rereading over testing when studying textbooks? A reexamination
Datar MV, Holmes ER, Adams AJ, Stolpe SF.	Student pharmacists' perceptions of community pharmacy residency programs
Oyler DR, Romanelli F, Piascik P, Cain J.	Practical Insights for the Pharmacist Educator on Student Engagement
Jacob B, Peasah S.	Evaluation of first year student pharmacists' perceptions of the pharmaceutical industry
Katoue MG, Ker J.	Pharmacists' experiences and perceptions about simulation use for learning and development of clinical skills in Kuwait

Mccombs BL.	The Role of the Self-System in Self-Regulated Learning
Weinstein CE, Zimmermann SA, Palmer DR.	Assessing learning strategies: The design and development of the LASSI
Weinstein CE, Palmer DR, Shulte AC, Rooks EM.	Learning and Study Strategies Inventory 2 nd Edition (LASSI)
Neugebauer SR.	A daily diary study of reading motivation inside and outside of school: A dynamic approach to motivation to read
Schweizer F, Wüstenberg S, Greiff S.	Validity of the MicroDYN approach: Complex problem solving predicts school grades beyond working memory capacity
Fujisawa KK, Wadsworth SJ, Jajihana S, Olson RK, DeFries JC, Byrne B, Ando J.	A multivariate twin study of early literacy in Japanese <i>kana</i>
Raufelder D, Drury K, Jagenow D, Hoferichter F, Bukoski W.	Development and validation of the Relationship and Motivation (REMO) scale to assess students' perceptions of peers and teachers as motivators in adolescence
Balsamo M, Lauriola M, Saggino A.	Work values and college major choice
Luwel K, Foustana A, Onghena P, Verschaffel L.	The role of verbal and performance intelligence in children's strategy selection and execution
Hofmann B.	Biases and imperatives in handling medical technology
Griffin C, Jones J, Kilgore KL.	A Qualitative Study of Student Teachers' Experiences with Collaborative Problem Solving
Stout D, Ruble TL.	A reexamination of accounting student learning styles
Lpez CL.	Assessment of student learning: challenges and strategies
Constantino-Conzález MdA, Suthers D.	Coaching collaboration in a computer-mediated learning environment
Herkert J.	Collaborative learning in engineering ethics
Terenzini P, Cabrera A, Colbeck C, Parente JM, Bjorklund SA.	Collaborative Learning vs. Lecture/Discussion: Students' Reported Learning Gains
Leithner A.	Do Student Learning Styles Translate to Different "Testing Styles"?
Evans C, Mujis D, Tomlinson D.	Engaged student learning. High Impact strategies to enhance student achievement
Walberg H, Wallace T.	Family Programs for Academic Learning
Lee K.	Online Collaborative Case Study Learning
Vermunt J, Vermetten YJM.	Patterns in Student Learning: Relationships Between Learning Strategies,

	Conceptions of Learning, and Learning Orientations
Newton FB.	Principles and strategies for enhancing student learning
Dale C.	Strategies for using podcasting to support student learning.
Perrine JL.	Strategies to boost RN retention.
Dressier S, Cedercreutz K, Pacheco A.	Strengthening Curriculum through Student Learning Outcome Assessment in Experimental Learning
Stillman S, Stillman PE, Martínez, Freedman J, Jensen A, Leet C.	Strengthening social emotional learning with student, teacher, and schoolwide assessments.
Kolluru S, Varughese J.	Structured academic discussions through an online education-specific platform to improve Pharm.D. students learning outcomes.
Hansen JW.	Student Cognitive Styles in Postsecondary Technology Programs.
Brown RD, Hallett ME, Stoltz R.	Student learning styles in landscape architecture education
Mather J, Champagne A.	Student Learning Styles/Strategies and Professors' Expectations: Do They Match?
Dawson V, Venville G.	Teaching Strategies for Developing Students' Argumentation Skills About Socioscientific Issues in High School Genetics
Hsieh P, Dwyer F.	The Instructional Effect of Online Reading Strategies and Learning Styles on Student Academic Achievement
Cuthbert P.	The student learning process: Learning styles or learning approaches?
Desselle S.	The use of Twitter to facilitate engagement and reflection in a constructionist learning environment.
Letassy NA, Fugate S, Medina M, Stroup J, Britton M.	Using team-based learning in an endocrine module taught across two campuses.
Tracey WR.	Programing -- Evaluating Achievements
Cervone BT.	Student Attitudes toward Studying History
Yip MCW.	Learning strategies and their relationships to academic performance of high school students in Hong Kong
Papinczak T, Peterson R, Babri AS, Ward K, Kippers V, Wilkinson D.	Using student-generated questions for student-centred assessment
Rothberg SJ, Lamb FM, Willis L.	Computer-assisted learning in UL engineering degree programmes: lessons learning from an extensive case study programme
Yip MCW.	The linkage among academic performance, learning strategies and

	self-efficacy of Japanese university students: a mixed-method approach
Kokkinos T, Gakis P.	Student teachers' differentiated teaching practices for high-achieving students
King A.	Facilitating Elaborative Learning through Guided Student-Generated Questioning
Hulleman CS, Durik AM, Schweigert SA, Harackiewicz JM.	Task values, achievement goals, and interest: An integrative analysis.
Hulleman CS, Schrager SM, Bodmann SM, & Harackiewicz JM.	A meta-analytic review of achievement goal measures: Different labels for the same constructs or different constructs with similar labels?
Hurley KE, Deal WP.	Assessment instruments measuring malingering used with individuals who have mental retardation: Potential problems and issues.
Husmann PR, O'Loughlin VD, Braun MW.	Quantitative and qualitative changes in teaching histology by means of virtual microscopy in an introductory course in human anatomy.
Iverson GL, Franzen MD.	Using multiple objective memory procedures to detect simulated malingering.
Rawson KA, Dunlosky J.	Optimizing schedules of retrieval practice for durable and efficient learning: how much is enough?
Meyer JHF, Cliff AF, Dunne TT.	Impressions of disadvantage: II-Monitoring and assisting the student at risk
Jacobs JE, Paris SG.	Children's metacognition about reading: issues in definition, measurement and instruction
James S, D'Amore A, Thomas T.	Learning preferences of first year nursing and midwifery students: Utilising VARK.
Jelicic M, Merckelbach H, Candel I, Geraets E.	Detection of feigned cognitive dysfunction using special malingering tests: A simulation study in naïve and coached malingerers
Jensen PA, Barron JN.	Midterm and first-exam grades predict final grades in biology courses
Hamm JM, Perry RP, Chipperfield JG, Murayama K, Weiner B.	Attribution-based motivation treatment efficacy in an online learning environment for students who differ in cognitive elaboration
Hattie J, Biggs J, Purdie N.	Effects of Learning Skills Interventions on Student Learning: A Meta-Analysis
Horan JJ.	Violence Prevention
Johnson-Greene D, Brooks L, Ference T.	Relationship between performance validity testing, disability status, and somatic complaints in patients with fibromyalgia
Jöreskog, K. G., & Sörbom, D.	LISREL 8 user guide (2nd edition)
Jungnickel P, Kelley K, Hammer D, Haines S, Marlowe K.	Addressing competencies for the future in the professional curriculum

Bridges KR.	Using attributional style to predict academic performance: how does it compare to traditional methods?
Kaplan E, Goodglass H, Weintraub S.	Boston Naming Test.
Kaplan, A., & Middleton, M.	Performance-approach goals: Good for what, for whom, under what circumstances, and at what cost?
Karpicke J, Roediger H.	Expanding retrieval practice promotes short-term retention, but equally spaced retrieval enhances long-term retention
Karpicke J, Roediger H.	Repeated retrieval during learning is the key to long-term retention
Karpicke J, Roediger H.	The critical importance of retrieval for learning
Karpicke J.	Metacognitive control and strategy selection: deciding to practice retrieval during learning
Karpicke JD, Bauernschmidt A.	Spaced retrieval: Absolute spacing enhances learning regardless of relative spacing
Kryza K.	Practical Strategies for Developing Executive Functioning Skills for ALL Learners in the Differentiated Classroom
Kember D, Gow L.	Cultural specificity of approaches to study
Ichimura K, Kusumi T	The influence of giving up and the timing of intervention on task persistence.
Kepple G.	A reconsideration of the extinction-recovery theory
Kiewra KA.	How classroom teachers can help students learn and teach them how to learn
Killgore WD, DellaPietra L.	Using the WMS-III to detect malingering: Empirical validation of the rarely missed index (RMI)
Kim RH, Gilbert T, Ristig K.	The effect of surgical resident learning style preferences on American Board of Surgery In-training Examination scores
Kim RH, Kurtzman SH, Collier AN, Shabahang MM.	The learning preferences of applicants who interview for general surgery residency: A multi-institutional study.
King PM, Brown MK, Lindsay NK, Vanhecke JR.	Liberal arts student learning outcomes: an integrated approach
Kirkwood M.	Validity testing in pediatric populations; Presentation to IOM Committee on Psychological Testing, Including Validity Testing, for Social Security Administration
Kirkwood MW, Yeates KO, Randolph C, Kirk JW.	The implications of symptom validity test failure for ability-based test performance in a pediatric sample.
Kitsantas A.	Test preparation and performance: a self-regulatory analysis.

Kline, R. B.	Principles and practice of structural equation modeling (2nd edition).
Kolers P, Roediger H.	Procedures of mind
Kollöffel B.	Exploring the relation between visualizer–verbalizer cognitive styles and performance with visual or verbal learning material
Koopman, M., Den Brok, P., Beijaard, D., & Teune, P.	Learning processes of students in pre-vocational secondary education: Relations between goal orientations, information processing strategies and development of conceptual knowledge
Kornell N, Bjork R.	The promise and perils of self-regulated study
Kozlowski SWJ, Gully SM, Brown KG, Salas E, Smith EM, Nason ER.	Effects Of training goals and goal orientation traits on multidimensional training outcomes and performance adaptability
Kraemer DJ, Hamilton RH, Messing SB, DeSantis JH, Thompson-Schill SL.	Cognitive style, cortical stimulation, and the conversion hypothesis
Kumar VK, Rabinsky L, Pandey TJ.	Test mode, test instructions, and retention.
Kvedar J, Coye MJ, Everett W.	Connected health: a review of technologies and strategies to improve patient care with telemedicine and telehealth
L. E., Stanley, L. J., Bynum, B. H., & Lance, C. E.	Examining the construct validity of mastery-avoidance achievement goals: A meta-analysis
Larrabee GJ.	Assessment of malingering. In: Larrabee GJ, editor. Forensic neuropsychology: A scientific approach
Larrabee GJ.	Detection of malingering using atypical performance patterns on standard neuropsychological tests
Larrabee GJ.	False-positive rates associated with the use of multiple performance and symptom validity tests
Larrabee GJ.	Introduction: Malingering, research designs, and base rates. In: Larrabee GJ, editor. Assessment of malingered neuropsychological deficits
Larrabee GJ.	Performance validity and symptom validity in neuropsychological assessment
Lau S.	Collectivism's individualism: Value preference, personal control, and the desire for freedom among Chinese in mainland China, Hong Kong, and Singapore.
Leite WL, Svinicki M, Shi Y.	Attempted validation of the scores of the VARK: Learning styles inventory with multitrait-multimethod confirmatory factor analysis models
Lewis RF.	Digit Vigilance Test
Lewis R, Berghoff P, Pheeney P.	Focusing students: Three approaches for learning through evaluation

Ley K, Young DB.	Instructional principles for self-regulation
Ley K, Young DB.	Self-regulation behaviors in underprepared (developmental) and regular admission college students
Ley K, Young DB.	Self-regulation behaviors in underprepared (developmental) and regular admission college students
Lezak M, Howieson D, Bigler E, Tranel D.	Neuropsychological assessment. 5th.
Long TM, Dauer JT, Kostelnik KM, Momsen JL, Wyse SA, Speth EB, Ebert-May D.	Fostering ecoliteracy through model-based instruction
Loranger AL.	The study strategies of successful and unsuccessful high school students
Lord SM, Prince MJ, Stefanou CR, Stolk JD, Chen JC.	The effect of different active learning environments on student outcomes related to lifelong learning
Hilt LM.	Attribution Retraining for Therapeutic Change: Theory, Practice, and Future Directions, Imagination, Cognition and Personality
Lounsbury JW, Sundstrom E, Loveland JM. and Gibson LW.	Intelligence, "Big Five" personality traits, and work drive as predictors of course grade
Lu PH, Boone KB, Cozolino L, Mitchell C.	Effectiveness of the Rey-Osterrieth Complex Figure Test and the Meyers and Meyers Recognition Trial in the detection of suspect effort
Montero L.	La motivación en las personas deficientes mentales, Infancia y Aprendizaje
Lujan HL, DiCarlo SE.	First-year medical students prefer multiple learning styles
Lundeberg MA, Fox PW.	Do laboratory findings on test expectancy generalize to classroom outcomes?
Luwel K, Torbey J, Verschaffel L.	The relation between meta-strategy knowledge, strategy use and task performance: findings and reflections from a numerosity judgment task
M. Stiernborg, R. C. Bandaranayake.	Medical students' approaches to studying
M.C. Matteucci.	Attributional retraining and achievement goals: An exploratory study on theoretical and empirical relationship
MacAllister WS, Nakhutina L, Bender HA, Karantzoulis S, Carlson C.	Assessing effort during neuropsychological evaluation with the TOMM in children and adolescents with epilepsy
Maehr, M. L. and Yamaguchi, R.	Cultural diversity, student motivation and achievement
Manly J, Echemendia R.	Race-specific norms: Using the model of hypertension to understand issues of race, culture, and education in neuropsychology
Marc Romainville.	Awareness of cognitive strategies: The relationship between university students' metacognition and their performance

Marcy V.	Adult learning styles: How the VARK learning style inventory can be used to improve student learning
Margaret Banks, Lisa Woolfson.	RESEARCH SECTION: Why do students think they fail? The relationship between attributions and academic self-perceptions
Markus, H., & Ruvolo, A.	Possible selves: personalized representations of goals
Mars M, Scott RE.	Global e-health policy: a work in progress
Martinez, M.	High attrition rates in e-learning: Challenges, predictors, and solutions
Marton, F. and Säljö, R.	On qualitative differences in learning II: Outcome as a function of the learner's conception of the task
Marton, F., & Saljo, R.	Approaches to learning
McCombs, B. L. and Whisler, J. S.	The role of affective variables in autonomous learning
McCrea M, Guskiewicz KM, Marshall SW, Barr W, Randolph C, Cantu RC, Onate JA, Yang J, Kelly JP.	Acute effects and recovery time following concussion in collegiate football players: The NCAA concussion study
McCrea M, Kelly JP, Randolph C, Cisler R, Berger L.	Immediate neurocognitive effects of concussion
McHugh M, Joshi M.	Improving evaluations of value-based purchasing programs
McKeachie, W. J., Pintrich, P. R. and Lin, Y.	Teaching learning strategies
McKee G.	Why is biological science difficult for first-year nursing students?
McKenzie, K., Gow, K., & Schweitzer, R.	Exploring first-year academic achievement through structural equation modelling
Mealey, D.L.	Learning and Study Strategies Inventory (LASSI) test review
Meijer, J., Elshout-Mohr, M., van Daalen-Kapteijns, M., & Meeus, W.	A self-report inventory for metacognition related to academic tasks
Meijer, J., Elshout-Mohr, M., van Daalen-Kapteijns, M., Meeus, W., & Tempelaar, D.	Construction and validation of a questionnaire on metacognition
Meyer AJ, Stomski NJ, Innes SI, Armson AJ.	VARK learning preferences and mobile anatomy software application use in pre-clinical chiropractic students
Meyer, G.	An experimental study of the old and new types of examination: I. The effects of examination set on memory
Meyer, G.	The effects of recall and recognition on the examination set in classroom

	situations
Meyers JE, Volbrecht M.	Detection of malingers using the Rey Complex Figure and Recognition Trial
Midgley, C., Kaplan, A., Middleton, M., Maehr, M., Urdan, T., Anderman, L., et al.	The development and validation of scales assessing students' achievement goal orientations
Miliard M..	Interoperability also poses big challenges in the UK
Minnaert, A. and Janssen, P.	Success and progress in higher education: A structural model of studying
Mittenberg W, Patton C, Canyock EM, Condit DC.	Base rates of malingering and symptom exaggeration
Mittenberg W, Patton C, Legler W.	Identification of malingered head injury on the Wechsler Memory Scale—Third Edition
Moller, A. C., & Elliot, A. J.	The 2×2 achievement goal framework: An overview of empirical research
Moritz S, Ferahli S, Naber D.	Memory and attention performance in psychiatric patients: Lack of correspondence between clinician-rated and patient-rated functioning with neuropsychological test results
Morris, C. D., Bransford, J. D., & Franks, J. J.	Transfer appropriate processing
Murphy RJ, Gray SA, Straja SR, Bogert MC.	Student learning preferences and teaching implications
NAN (National Academy of Neuropsychology).	NAN definition of a clinical neuropsychologist: Official position of the National Academy of Neuropsychology
Nathan C. Hall, Raymond P. Perry, Judith G. Chipperfield, Rodney A. Clifton, Tara L. Haynes.	Enhancing Primary and Secondary Control in Achievement Settings Through Writing–Based Attributional Retraining
Nathan C. Hall, Raymond P. Perry, Thomas Goetz, Joelle C. Ruthig, Robert H. Stupnisky, Nancy E. Newall.	Attributional retraining and elaborative learning: Improving academic development through writing-based interventions
Nathan C. Hall, Shannan E. Jackson Gradt, Thomas Goetz, Lauren E. Musu-Gillette.	Attributional Retraining, Self-Esteem, and the Job Interview: Benefits and Risks for College Student Employment
Nathan C. Hall, Steven Hladkyj, Raymond P. Perry, Joelle C. Ruthig.	The Role of Attributional Retraining and Elaborative Learning in College Students' Academic Development
Niccolls R, Bolter JF.	Multi-Digit Memory Test
Nicol DJ, Macfarlane-Dick D.	Formative assessment and self-regulated learning: a model and seven principles of good feedback practice

Nicolina M. Fazio, Linda J. Palm.	Attributional Style, Depression, and Grade Point Averages of College Students
NIH (National Institutes of Health).	NIH toolbox: Processing speed
Nungester R, Duchastel P.	Testing versus review: effects on retention
Nuzhat A, Salem RO, Quadri MS, Al-Hamdan N.	Learning style preferences of medical students: A single-institute experience from Saudi Arabia
OIDAP (Occupational Information Development Advisory Panel).	Mental cognitive subcommittee: Content model and classification recommendations
Olausen, B. S., & Bråten, I.	Students' use of strategies for self-regulated learning: cross-cultural perspectives
Oyserman, D., & Markus, H.	Possible selves and delinquency
Palmer, D. and Goetz, E. T.	Selection and the use of study strategies: The role of the studier's beliefs about self and strategies
Papanagnou D, Serrano A, Barkley K, Chandra S, Governatori N, Piela N, Wanner GK, Shin R.	Does tailoring instructional style to a medical student's self-perceived learning style improve performance when teaching intravenous catheter placement? A randomized controlled study
Paris SG, Newman RS.	Development aspects of self-regulated learning
Pashler H, McDaniel M, Rohrer D, Bjork R.	Learning styles: Concepts and evidence
Patti C. Parker, Raymond P. Perry, Jeremy M. Hamm, Judith G. Chipperfield, Steve Hladkyj.	Enhancing the academic success of competitive student athletes using a motivation treatment intervention (Attributional Retraining)
Paulhus DL.	Paulhus Deception Scales (PDS)
Perels F, Gürtler T, Schmitz B.	Training of self-regulatory and problem-solving competence
Perkins DN.	What constructivism demands of the learner
Perry RP, Hladkyj S, Pekrun RH, Clifton RA, Chipperfield JG.	Perceived academic control and failure in college students: a three-year study of scholastic attainment
Peyman H, Sadeghifar J, Khajavikhan J, Yasemi M, Rasool M, Yaghoubi YM, Nahal MM, Karim H.	Using VARK approach for assessing preferred learning styles of first year medical sciences students: A survey from Iran
Phipps, R. and Merisotis, J.	What's the difference? A review of contemporary research on the

	effectiveness of distance learning in higher education
Pintrich PR, De Groot EV.	Motivational and self-regulated learning components of classroom academic performance
Pintrich PR, Smith DAF, Garcia T, McKeachie WJ.	A Manual for the Use of the Motivated Strategies for Learning Questionnaire (MSLQ)
Pintrich, P. R.	The role of goal orientation in self-regulated learning
Pintrich, P. R.	A conceptual framework for assessing motivation and self-regulated learning in college students
Pintrich, P. R., & DeGroot, E. V.	Motivational and self-regulated learning components of classroom academic performance
Pintrich, P. R., & Garcia, T.	Student goal orientation and self-regulation in the classroom
Poortvliet, P. M., Janssen, O., Van Yperen, N. W., & Van de Vliert, E.	Achievement Goals and interpersonal behavior: How mastery and performance goals shape information exchange
Popovich NG.	Educational care of pharmacy
Porter ME.	A strategy for health care reform—toward a value-based system
Porter ME.	What is value in health care?
Pressley, M.	More about the development of self-regulation: complex, long-term and thoroughly social
Prithishkumar IJ, Michael SA.	Understanding your student: Using the VARK model
Qureshi, E., Morton, L. L. and Antosz, E.	An interesting profile – University students who take distance education courses show weaker motivation than on-campus students
R Development Core Team.	R: A Language and Environment for Statistical Computing
Randolph C.	Repeatable Battery for the Assessment of Neuropsychological Status (RBANS)
Rao SM.	Neuropsychology of multiple sclerosis: A critical review
Raudenbush, S. W., & Bryk, A. S.	Hierarchical linear models: Applications and data analysis methods
Raymond P. Perry, Dieter J. Schonwetter, Jamie-Lynn Magnusson, C. Ward Struthers.	Students' explanatory schemas and the quality of college instruction: Some evidence for buffer and compensation effects
Raymond P. Perry, Frank J. Hechter, Verena H. Menec, Leah E. Weinberg.	Enhancing achievement motivation and performance in college students: An attributional retraining perspective
Raymond P. Perry, Judith G.	Attribution-Based Treatment Interventions in Some Achievement Settings

Chipperfield, Steve Hladkyj, Reinhard Pekrun, Jeremy M. Hamm.	
Raymond P. Perry, Nathan C. Hall, Joelle C. Ruthig.	Perceived (Academic) Control and Scholastic Attainment in Higher Education
Raymond P. Perry, Robert H. Stupnisky, Nathan C. Hall, Judith G. Chipperfield, Bernard Weiner.	Bad Starts and Better Finishes: Attributional Retraining and Initial Performance in Competitive Achievement Settings
Rebecca Maymon, Nathan C. Hall, Thomas Goetz, Andrew Chiarella, Sonia Rahimi.	Technology, attributions, and emotions in post-secondary education: An application of Weiner's attribution theory to academic computing problems
Reinagel A, Bray Speth E.	Beyond the central dogma: model-based learning of how genes determine phenotypes
Reiner C, Willingham D.	The myth of learning styles
Reitan RM, Wolfson D.	The Halstead-Reitan neuropsychological test battery: Theory and clinical interpretation—second edition
Reitan RM.	Trail Making Test: Manual for administration and scoring
Reveni R. Moodaley, Adelene A. Grobler, Willy Lens.	Study Orientation and Causal Attribution in Mathematics Achievement
Rey A.	L'examen psychologique dans les cas d'encéphalopathie traumatique (les problems)
Rey A.	The clinical examination in psychology
Richardson M, Abraham C, Bond R.	Psychological correlates of university students' academic performance: a systematic review and meta-analysis
Ridgell, S. D. and Lounsbury, J. W.	Predicting academic success: General intelligence, "Big Five" personality traits, and work drive
Roberson CJ, Boone KB, Goldberg H, Miora D, Cottingham M, Victor T, Ziegler E, Zeller M, Wright M.	Cross validation of the B test in a large known groups sample
Rodney A. Clifton, Jeremy M. Hamm, Patti C. Parker.	Promoting Effective Teaching and Learning in Higher Education
Roediger H, Karpicke J.	The power of testing memory: basic research and implications for educational practice
Roghayeh Gandomkar, Azim Mirzazadeh, Mohammad Jalili, Kamran Yazdani, Ladan Fata, John Sandars.	Self-regulated learning processes of medical students during an academic learning task

Ruben RJ.	Redefining the survival of the fittest: Communication disorders in the 21st century
S. M. Chedzoy, R. L. Burden.	Marking Time or Moving on, Research in Education
S., & Renninger, K. A.	The four-phase model of interest development
Salazar XF, Lu PH, Wen J, Boone KB.	The use of effort tests in ethnic minorities and in non-English-speaking and English as a second language populations
Salekin KL, Doane BM.	Malingering intellectual disability: The value of available measures and methods
Salili, F.	Explaining Chinese motivation and achievement
Salili, F.	Achievement motivation: A cross-cultural comparison of British and Chinese students
Salili, F., Chiu, C. Y. and Hong, Y. Y.	Student motivation: The culture and context of learning
Salili, F., Chiu, C. Y. and Lai, S.	The influence of culture and context on students' motivational orientation and performance
Samarakoon L, Fernando T, Rodrigo C, Rajapakse S.	Learning styles and approaches to learning among medical undergraduate and postgraduates
Sax, G., & Collet, L. S..	An empirical comparison of the effects of recall and multiple choice tests on student achievement
Schacter DL.	Toward a cognitive neuropsychology of awareness: Implicit knowledge and anosognosia
Schellings G, Van Hout-Wolters B.	Measuring strategy use with self-report instruments: theoretical and empirical considerations
Schmidt M.	Auditory Verbal Learning Test: RAVLT: A handbook
Schmidt, A. M., & Ford, K. J.	Learning with a learner control-training environment: the interactive effects of goals orientation and metacognitive instruction on learning outcomes
Schraw G, Crippen KJ, Hartley K.	Promoting self-regulation in science education: metacognition as part of a broader perspective on learning
Schraw G, Moshman D.	Metacognitive theories
Schraw, G., & Dennison, R. S.	Assessing metacognitive awareness
Schraw, G., Horn, C., Thorndike-Christ, T., & Bruning, R.	Academic goal orientations and student classroom achievement
Schretlen DJ, Testa S, Winicki JM, Pearlson GD, Gordon B.	Frequency and bases of abnormal performance by healthy adults on neuropsychological testing

Schunk, D. H.	Social cognitive theory and self-regulated learning
Schunk, D. H.	Social cognitive theory and self-regulated learning
Scott C.	The enduring appeal of 'learning styles'
Scouller K.	The influence of assessment method on students' learning approaches: multiple choice question examination versus assignment essay
Seery MK.	Flipped learning in higher education chemistry: emerging trends and potential directions
Semel E, Wiig E, Secord W.	Clinical evaluation of language fundamentals: Examiners manual. 4th
Senko, C., Hulleman, C. S., & Harackiewicz, J. M.	Achievement goal theory at the crossroads: Old controversies, current challenges, and new directions
Seymour E, Hewitt NM.	Talking about Leaving: Why Undergraduates Leave the Sciences
Shandera AL, Berry DT, Clark JA, Schipper LJ, Graue LO, Harp JP.	Detection of malingered mental retardation
Shell, D. F., & Husman, J.	Control, motivation, and strategic self-regulation in the college classroom: A multidimensional phenomenon
Sheslow D, Adams W.	Wide range assessment of memory and learning second edition administration and technical manual
Sikka R, Morath JM, Leape L.	The quadruple aim: care, health, cost and meaning in work
Silverberg ND, Millis SR.	Impairment versus deficiency in neuropsychological assessment: Implications for ecological validity
Sitzmann T, Ely K.	A meta-analysis of self-regulated learning in work-related training and educational attainment: what we know and where we need to go
Slater JA, Lujan HL, DiCarlo SE.	Does gender influence learning style preferences of first-year medical students?
Slick DJ, Hopp G, Strauss E, Thompson GB.	Victoria Symptom Validity Test: Professional manual
Slick DJ, Sherman EMS, Iverson GL.	Diagnostic criteria for malingered neurocognitive dysfunction: Proposed standards for clinical practice and research
Smith L, Krass I, Sainsbury E, Rose G.	Pharmacy students' approaches to learning in undergraduate and graduate entry programs
Sollman MJ, Berry DT.	Detection of inadequate effort on neuropsychological testing: A meta-analytic update and extension
Solomon RE, Boone KB, Miora D, Skidmore S, Cottingham M, Victor T, Ziegler E, Zeller M.	Use of the WAIS-III picture completion subtest as an embedded measure of response bias

Somuncuoglu, J., & Yildirim, A.	Relationship between achievement goal orientations and use of learning strategies
Sperling, R. A., Howard, B. C., Staley, R., & DuBois, N.	Metacognition and self-regulated learning constructs
Spreeen O, Strauss E.	Controlled oral word association (word fluency)
SSA (Social Security Administration).	Disability evaluation under social security—Part III: Listing of impairments—Adult listings (Part A)—section 12.00 mental disorders
SSA.	Disability evaluation under Social Security: Part I—general information
Stanton JD, Neider XN, Gallegos IJ, Clark NC.	Differences in metacognitive regulation in introductory biology students: when prompts are not enough
Steiner H.	The strategy project: promoting self-regulated learning through an authentic assignment
Steinmayr, R., Bipp, T., & Spinath, B.	Goal orientations predict academic performance beyond intelligence and personality
Stevens A, Schneider K, Liske B, Hermle L, Huber H, Hetzel G.	Is subnormal cognitive performance in schizophrenia due to lack of effort or to cognitive impairment?
Strauss E, Sherman EM, Spreeen O.	A compendium of neuropsychological tests: Administration, norms, and commentary
Suárez Reveiro, J. M., Gonzales Cabanach, R., & Valle Arias, A.	Multiple-goal pursuit and its relation to cognitive, self-regulatory, and motivational strategies
Suber, J. R.	The effect of test expectation, subject matter, and passage length on study tactics and retention
Suchy Y, Chelune G, Franchow EI, Thorgusen SR.	Confronting patients about insufficient effort: The impact on subsequent symptom validity and memory performance
Sue, S. and Okazaki, S.	Asian American educational achievement: A phenomenon in search of an explanation
Suhr JA, Boyer D.	Use of the Wisconsin Card Sorting Test in the detection of malingering in student simulator and patient samples
Susan Loyola.	Evidence-Based Teaching Guidelines
Sweet JJ, Meyer DG, Nelson NW, Moberg PJ.	The TCN/AACN 2010 “salary survey”: Professional practices, beliefs, and incomes of U.S. neuropsychologists
Tanner K, Allen D.	Approaches to biology teaching and learning: Learning styles and the problem of instructional selection - Engaging all students in science courses
Tanner KD.	Promoting student metacognition
Tara L. Haynes Stewart, Rodney	Attributional Retraining: reducing the likelihood of failure

A. Clifton, Lia M. Daniels, Raymond P. Perry, Judith G. Chipperfield, Joelle C. Ruthig.	
Tara L. Haynes, Joelle C. Ruthig, Raymond P. Perry, Robert H. Stupnisky, Nathan C. Hall.	Reducing the Academic Risks of Over-Optimism: The Longitudinal Effects of Attributional Retraining on Cognition and Achievement
Tara L. Haynes, Lia M. Daniels, Robert H. Stupnisky, Raymond P. Perry, Steve Hladkyj.	The Effect of Attributional Retraining on Mastery and Performance Motivation Among First-Year College Students
Tara L. Haynes, Raymond P. Perry, Robert H. Stupnisky, Lia M. Daniels.	A Review of Attributional Retraining Treatments: Fostering Engagement and Persistence in Vulnerable College Students
Ted Thompson.	Self-worth Protection: review and implications for the classroom
Teena Willoughby, Taylor Heffer, Victoria W. Dykstra, Hamnah Shahid, Joelle Braccio.	A Latent Class Analysis of Adolescents in First-Year University: Associations with Psychosocial Adjustment Throughout the Emerging Adult Period and Post-University Outcomes
The Comptroller and Auditor General of the National Audit Office (UK).	Investigation: WannaCry cyber-attack and the NHS. UK Department of Health
Thomas DR.	A general inductive approach for analyzing qualitative evaluation data
Thomas Goetz, Madeleine Bieg.	Academic Emotions and Their Regulation via Emotional Intelligence
Tiaden, C., Grieder, S., & Steiner, G.	Metacognition and its relatedness to self-regulated learning
Timothy D. Wilson, Michelle Damiani, Nicole Shelton.	Improving the Academic Performance of College Students with Brief Attributional Interventions
Tombaugh TN, Tombaugh PW.	Test of Memory Malingering: TOMM
Trahan DE, Larrabee GJ.	Continuous Visual Memory Test
Tulving, E.	Elements of episodic memory
Urval RP, Kamath A, Ullal S, Shenoy AK, Shenoy N, Udupa L.	Assessment of learning styles of undergraduate medical students using the VARK questionnaire and the influence of sex and academic performance
van Gorp WG, Humphrey LA, Kalechstein A, Brumm VL, McMullen WJ, Stoddard M, Pachana NA.	How well do standard clinical neuropsychological tests identify malingering?: A preliminary analysis
Van Zile-Tamsen, C., & Livingston, J. A.	The differential impact of motivation on the self regulated strategy use of high- and low-achieving college students

Vandavelde S, Van Keer H, Rosseel Y.	Measuring the complexity of upper primary school children's self-regulated learning: a multi-component approach
Vansteenkiste, M., Mouratidis, A., & Lens, W.	Detaching reasons from aims: Fairplay and well-being in soccer as a function of pursuing performance-approach goals for autonomous or controlling reasons
VARK.	The VARK questionnaire: How do I learn best? VARK questionnaire version 7.1.
Veenman MV, Van Hout-Wolters BH, Afflerbach P.	Metacognition and learning: conceptual and methodological considerations
Veenman MVJ.	Alternative assessment of strategy use with self-report instruments: a discussion
Veenman, M. V. J., & Beishuizen, J. J.	Intellectual and metacognitive skills of novices while studying texts under conditions of text difficulty and time constraint
Veenman, M. V. J., & Verheij, J.	Technical students' metacognitive skills: relating general vs. specific metacognitive skills to study success
Veenman, M. V. J., Van Hout-Wolters, B. H. A. M., & Afflerbach, P.	Metacognition and learning: conceptual and methodological considerations
Verena H. Menec, Raymond P. Perry, C. Ward Struthers, Dieter J. Schonwetter, Frank J. Hechter, Brila L. Eichholz.	Assisting At-Risk College Students With Attributional Retraining and Effective Teaching
Verena H. Menec, Raymond P. Perry.	Disciplinary differences in students' perceptions of success: Modifying misperceptions with attributional retraining
Vermetten, Y. J., Lodewijks, H. G., & Vermunt, J. D.	The role of personality traits and goal orientations in strategy use
Victor TL, Boone K, Serpa JG, Buehler J, Ziegler E.	Interpreting the meaning of multiple symptom validity test failure
Victor TL, Boone KB.	Identification of feigned mental retardation
Warrington E.	Recognition Memory Test manual
Wäschle K, Allgaier A, Lachner A, Fink S, Nückles M.	Procrastination and self-efficacy: tracing vicious and virtuous circles in self-regulated learning
Wechsler D.	Wechsler Adult Intelligence Scale (WAIS-III): Administration and scoring manual—3rd edition
Wechsler D.	Wechsler Intelligence Scale for Children—fourth edition (WISC-IV)
Wechsler D.	WMS-III: Wechsler Memory Scale administration and scoring manual
Wehrwein EA, Lujan HL,	Gender differences in learning style preferences among undergraduate

DiCarlo SE.	physiology students
Weiner, B.	An attributional theory of achievement motivation and emotion
Weinstein C, Schulte A, Palmer D.	LASSI: Learning and Study Strategies Inventory
Weinstein, C. E.	Assessment and training of student learning strategies
Weinstein, C. E. and Mayer, R. E.	The teaching of learning strategies
Weinstein, C. E., Zimmermann, S. A., Palmer, D. R.	Assessing learning strategies: the design and development of the LASSI
Wheeler MA, Roediger HL.	Disparate effects of repeated testing: Reconciling Ballard's (1913) and Bartlett's (1932) results
WHO (World Health Organization).	International classification of functioning, disability, and health (ICF)
Wingate U.	A framework for transition: supporting “learning to learn” in higher education
Winne, P. H.	Inherent details in self-regulated learning
Winne, P. H.	A metacognitive view of individual differences in self-regulated learning
Winne, P. H.	Self-regulated learning viewed from models of information processing
Winne, P. H.	A perspective on state-of-the-art research on self-regulated learning
Winne, P. H.	Improving measurements of self-regulated learning
Winne, P. H., & Hadwin, A. F.	Studying as self-regulated learning
Wolters CA.	Regulation of motivation: evaluating an underemphasized aspect of self-regulated learning
Wolters, C. A.	Self-regulated learning and college students' regulation of motivation
Wolters, C. A.	Understanding procrastination from a self-regulated learning perspective
Wolters, C. A.	Advancing achievement goal theory: using goals structures and goal orientations to predict students' motivation, cognition and achievement
Woolfolk A.	Educational Psychology
World Economic Forum.	Value in healthcare: laying the foundation for health system transformation
Yates F.	Contingency table involving small numbers and the χ^2 test
Young G.	Resource material for ethical psychological assessment of symptom and performance validity, including malingering

Zhang, L. F.	Abilities, academic performance, learning approaches, and thinking styles: A three-culture investigation
Zimmerman BJ, Martinez-Pons M.	Construct validation of a strategy model of student self-regulated learning
Zimmerman BJ, Martinez-Pons M.	Development of a structured interview for assessing student use of self-regulated learning strategies
Zimmerman BJ.	Investigating self-regulation and motivation: historical background, methodological developments, and future prospects
Zimmerman BJ.	Self-regulated learning and academic achievement: an overview
Zimmerman, B. J.	Becoming a self-regulated learner: Which are the key subprocesses?
Zimmerman, B. J.	A social cognitive view of self-regulated academic learning
Zimmerman, B. J.	Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional models
Zimmerman, B. J.	Attaining self-regulation: A social cognitive perspective
Zimmerman, B. J., & Kitsantas, A.	The hidden dimension of personal competence: self-regulated learning and practice
Zimmerman, B. J., & Martinez-Pons, M.	Construct validation of a strategy model of student self regulated learning
Zimmerman, B. J., & Martinez-Pons, M.	Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use
Zimmerman, B. J., & Schunk, D. H.	Self-regulated learning and academic achievement: theoretical perspectives
Zimmerman, B. J., Bandura, A., & Martinez-Pons, M.	Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting.

Excluded articles from manual search full-text screen

<u>Authors</u>	<u>Title</u>
Ferla, J., Valcke, M., Schuyten, G	Student models of learning and their impact on study strategies
Bhutkar MV, Bhutkar PM	Effect of awareness of learning styles and modifications in study modalities on academic performance in first MBBS students
Broekkamp H, Van Hout-Wolters BHAM	Students' adaptation of study strategies when preparing for classroom tests
Bulent A, Hakan K, Aydin B	An analysis of undergraduates' study skills

Dobson JL, Perez J, Linderholm T	Distributed retrieval practice promotes superior recall of anatomy information
Ford, J. K., Smith, E. M., Weissbein, D. A., Gully, S. M., & Salas, E	Relationships of goal orientation, metacognitive activity and practice strategies with learning outcomes and transfer
Gallard-Echenique E, Bullen M, Marqués-Molíás L	Student communication and study habits of first-year university students in the digital era
McKeachie, W.J., Pintrich, P.R., Lin, Y.	Teaching learning strategies
Schmi, S., Yeung, A., Read, J.R.	Students' learning styles and academic performance
Husmann PR, Barger JB, Schutte AF	Study skills in anatomy and physiology: Is there a difference?
Karpicke J, Butler A, Roediger H	Metacognitive strategies in student learning: do students practice retrieval when they study on their own?
Liem, A. D., Lau, S., & Nie, Y	The role of self-efficacy, task value, and achievement goals in predicting learning strategies, task disengagement, peer relationship, and achievement outcome
Lopez EJ, Nandagopal K, Shavelson RJ, Szu E, Penn J	Self-regulated learning study strategies and academic performance in undergraduate organic chemistry: an investigation examining ethnically diverse students
McCabe J	Metacognitive awareness of learning strategies in undergraduates
Roediger H, Karpicke J	Test-enhanced learning: taking memory tests improves long-term retention
Scouller, K. M., & Prosser, M	Students' experiences in studying for multiple choice question examinations
Smith L, Saini B, Krass I, Chen TF, Bosnic-Anticevich S, Sainsbury E	Pharmacy students' approaches to learning in an Australian university
Weinstein, C. E., Husman, J. and Dierking, D. R	"Interventions with a focus on learning strategies". In Handbook of self-regulation, Edited by: Boekaerts, M., Pintrich, P. R. and Zeidner, M
Yip, M. C. W.	Relationship of study strategies and academic performance of higher education: A cross-cultural comparison

Appendix 4

First author and title of included study	Country	Study design, duration, and participants	Type of Data	Outcome	Quality: Design/score
<i>Balasubramaniam et al, 2016; A Study of Learning Style Preferences among First Year Undergraduate Medical Students Using VARK Model</i>	India	Quantitative descriptive design; One-time questionnaire (VARK) filling-out period (exact time not specified) given to first year undergraduate students (n=152, only 144 completed successfully)	Questionnaires (n=144)	48% of participants preferred unimodality, and 52% preferred multimodality. Within the unimodal learning sample, 35% used kinaesthetic techniques and 34% used auditory techniques. Within the multimodal learning sample, kinesthetic, aural, and visual techniques made up the majority of learning styles. It was found that most students preferred the multimodal learning approach, which suggests that the implementation of multimedia may effectively accommodate their learning styles.	4/*****
<i>Baykan et al, 2007; Learning styles of first-year medical students attending Erciyes University in Kayseri, Turkey</i>	Turkey	Quantitative descriptive design; Questionnaire (VARK) given to fill out at the beginning of the semester (exact time not specified); Administered to first-year medical students (n=162, only 155 completed successfully)	Questionnaires (n=155)	After administering VARK it was found that the 36.1% of the sample preferred unimodality, and 63.9% preferred multimodality. Additionally, 23.3% used kinesthetic techniques, 7/7% used auditory techniques, 3.2% used visual techniques, and 1.9% used read-write techniques in their learning strategies. 30.3% of participants had bimodal approaches, 20.7% had trimodal approaches, and 12.9% had quad-modal approaches. No significant differences in learning style preferences were observed between males and females, and no significant relationship was observed between student GPAs and their learning preferences.	4/*****
<i>Credé et al, 2008; Study Habits, Skills, and Attitudes: The Third Pillar Supporting Collegiate Academic Performance</i>	USA	Qualitative design; Meta-analysis (exact time not specified) of studies (n=72,431) concerning 10 study skill constructs;	Studies (n=72,431)	Learning strategy/skill inventories don't often depend on highschool admission test scores, but they do have a slight relation to personality constructs. It was found that motivation and study skills have the highest correlation with student gpa and course success. Inventories that are most predictive of performance are regarding study habits and attitude. Anxiety rooted in academics also seemed to be a negative predictor of student performance.	1/*****
<i>Diseth, 2011; Self-efficacy, goal orientations and learning strategies as mediators between preceding and subsequent academic</i>	Norway	Quantitative descriptive design; Inventories were given out (15 min. to complete) to undergraduate psychology students (n=211, only 177 completed correctly)	Questionnaires (n=177) Inventory before exam, highschool GPA, examination grade,	It was found that a strong relationship exists between the learning strategies of self-efficacy/goal orientations and deep/surface learning. Additionally, preceding academic achievement was found to predict self-efficacy and future achievement.	4/****

achievement.			ASSIST inventory		
<i>Dobson et al, 2014; Self-testing promotes superior retention of anatomy and physiology information</i>	USA	Randomized controlled trials design; Phase 1 and phase 2 were conducted over the course of more than a week with undergraduates from an Anatomy and Physiology I course (n=147, with only 125 being included)	Examinations (n=5), observations (more than a week), questionnaires	The reading, testing, and rereading strategy (R-T-R) was found to significantly increase students' ability to retain information after a week of its implementation. Additionally, the implementation of self-testing instructions seemed to aid students in preparing for course examinations.	2/****
<i>Dobson, 2009; Learning style preferences and course performance in an undergraduate physiology class</i>	USA	Quantitative descriptive design; Questionnaire (VARK) given out (exact time not specified) to undergraduate students in Applied Human Physiology courses (n=1,037, with only 901 being included)	Questionnaires (n=901)	It was found that there are significantly different learning style preferences between male and females. 46% of females preferred visual learning, 27% preferred read/write methods, and 4% preferred kinesthetic. However, 49% males seemed to prefer visual learning, 29% preferred read/write methods, 17% preferred aural, and 5% preferred kinesthetic. Additionally, it was found that there was a significant relationship regarding sensory modality and student course scores.	4/****
<i>Drago et al, 2004; Vark preferred learning styles and online education</i>	USA	Quantitative descriptive design; Review of VARK preferred learning style and online education (exact time not specified); VARK administered to students from 11 MBA management courses at the end of each semester (n=527, with only 326 completed successfully)	Questionnaires (n=326), Studies	It was found that students completing school online were more likely to have more well-developed visual and read-write learning strategies. Those that preferred read-write methods and other students who had well-developed skills across all 4 learning styles were found to be more likely to evaluate the effectiveness of a course lower in comparison to other students. Students that preferred aural/read-write methods were individuals who did not have well-developed skills in other learning styles. These students were found to be more likely to evaluate course effectiveness higher.	4/****
<i>Elliot et al, 1999; Achievement goals, study strategies, and exam performance: A mediational analysis.</i>	USA	Quantitative descriptive design; 2 studies conducted analyzing achievement goals over a total of 343 undergraduates enrolled in an introductory level psychology course (only	Questionnaires (n=343)	It was found that mastery goals positively predict persistence, deep processing, and effort in students. With performance-approach goals, it seemed that they acted as positive predictors for surface processing, persistence, exam performance, and effort as well. Performance-avoidance goals also positively predicted surface processing, along with disorganization. Yet it seemed to additionally act as a negative predictor for deep processing and exam performance. Overall, it was shown that persistence and effort moderated the relationship between performance-approach goals and exam performance, with disorganization moderating exam performance and performance-avoidance goals instead.	4/****

<i>Farkas et al, 2015; Learning style versus time spent studying and career choice: Which is associated with success in a combined undergraduate anatomy and physiology course?</i>	USA	Quantitative descriptive design;	Questionnaires (n=492)	It was found that the amount of study time was not significantly correlated with the style of learning or student career plans. Career choices and study time seemed to be correlated with higher student achievement.	4/*****
<i>Duncan et al, 1996; Assessing students' motivation and learning strategies in the classroom context: The Motivated Strategies for Learning Questionnaire.</i>	USA	Qualitative design; Reviews of studies regarding motivation and cognitive components in a classroom context; (participants aren't really specified, it talks about studies in a more general sense)	Studies, Questionnaires (used in those studies)	The Motivated Strategies for Learning Questionnaire is deemed to be fairly reliable, with response accuracy depending on the characteristics of particular questions (ex. Length, phrasing). It was found that the learning strategies scales included in this questionnaire positively correlated with student performance in terms of course grades. This study demonstrated that the MSLQ is a valid approach to analyzing student motivation and study strategies within schooling.	1/*****
<i>Hartwig et al, 2012; Study strategies of college students: are self-testing and scheduling related to achievement?</i>	USA	Quantitative descriptive design; Administered questionnaires (exact time not specified) to undergraduate students in KSU participant pool (n=324)	Questionnaires (n=324)	Self-testing, rereading, and scheduling of study time were all important factors regarding GPA, with positive associations with the first 2 strategies. It was found that high-achieving students were less likely to participate in late-night studying in comparison to low-achieving students, who also seemed to be driven by deadlines. Additionally, the accumulation of study was found to be associated with the use of fewer study strategies.	4/****
<i>Yip, 2012; Learning strategies and self-efficacy as predictors of academic performance: a preliminary study</i>	China	Quantitative descriptive design; Administered revised LASSI-C questionnaire (20 min) to undergraduate students (n=215, only 200 completed successfully)	Questionnaires (n=200)	It was found that, by comparing high-achieving and low-achieving students, major differences can be observed. In particular, self-efficacy acted as a good indicator between both student groups in a university setting.	4/****
<i>Zhou et al, 2016; The relationship between study strategies and academic performance</i>	USA	Quantitative descriptive design; LASSI and SDLRS questionnaires were administered (over a session, exact time not specified) to medical students before their first and second years (n=168)	Questionnaires (n=168)	The results obtained through SDLRS and LASSI implementations differ in terms of their predictive value. While LASSI subscales of concentration, motivation, time management, and test strategies seem to correlate with student academic performance, it seems that SDLRS does not have any direct relation to the subject.	4/****

<i>Khalil et al, 2017; The Relationship Between Learning and Study Strategies Inventory (LASSI) and Academic Performance in Medical Schools</i>	USA	Quantitative descriptive design; LASSI questionnaire was administered during orientation (exact time not specified) to medical students starting first and second year (n=128)	Questionnaires (n=128)	Students that had more experience within medical school provided more accurate assessments of learning strategies in comparison to those starting medical school. It was found that 3 subscales - anxiety, selecting main ideas, and test strategies - all had a correlation with student achievement during internal and external testing.	4/*****
<i>Khalil et al, 2019; The Use of Learning and Study Strategies Inventory (LASSI) to Investigate Differences Between Low vs High Academically Performing Medical Students</i>	USA	Quantitative descriptive study, 180 medical students from three classes	Questionnaires (n=180)	By comparing high-achieving and low-achieving students, it was seen that only 3 LASSI subscales provided significant differences between the 2, being anxiety, motivation, and test strategies. These scales correlated with both groups during internal and external tests.	4/*****
<i>Vrugt et al, 2008; Metacognition, achievement goals, study strategies and academic achievement: Pathways to achievement.</i>	Netherlands	Quantitative descriptive design; The MSLQ questionnaire was administered 1 week before an exam (exact time not specified) to first-year undergraduate psychology students enrolled in the Introduction to Psychology course (n=952)	Questionnaires (n=952)	The metacognitive pathway in self-regulated learning incorporated positive mastery goals relationships, while also incorporating negative performance-avoidance goals relationships within metacognition. On the contrary, the strategy pathways incorporated only the positive effects of mastery and performance-approach goals within metacognition and deep cognition. Overall, metacognition had a positive effect on all 4 strategies of effective self-regulated learning. Performance-goals also presented positive effects through surface cognitive and resource management strategies.	4/****
<i>Alkhateeb et al, 2014; Assessment of learning and study strategies of university students in Qatar using an Arabic translation of the Learning and Study Strategies Inventory</i>	Qatar	Quantitative descriptive design; LASSI questionnaire was administered (exact time not specified) to undergraduate university students (n=413)	Questionnaires (n=413)	Of the 10 scales, only 9 were found to be significantly correlated with student GPAs, providing a statistically significant basis that presents differences between low-achieving and high-achieving students. It was found that anxiety and test strategies predicted academic success in reference to student GPAs.	4/****
<i>O'Mahony et al, 2016; Association between learning style preferences and anatomy assessment outcomes in graduate-entry and undergraduate medical students</i>	Ireland	Quantitative descriptive design; VARK and LSQ questionnaires were administered (exact time not specified) to first and second years in the DEM medical program and first years in the GEM program (n=327)	Questionnaires (n=327)	A weak correlation between anatomy assessment performance and multiple LSQ style preferences were observed. The "Activist" style seemed to have a negative correlation with anatomy scores in second year students, while the "Theorist" seemed to have a weak correlation with anatomy scores in second year students. Students who achieved high scores on the VARK "Aural" modality, however, were found to have improved anatomy scores.	4/*****

<i>McAndrew et al, 2016; Dental Student Study Strategies: Are Self-Testing and Scheduling Related to Academic Performance?</i>	USA	Quantitative descriptive design; 16-item survey administered after preclinical laboratory sessions (exact time not specified) to second year dental students (n=358, only 94 completed successfully)	Questionnaires (n=94)	Self-testing and rereading study strategies seemed to be the techniques used by the majority of the sample population. It was found that self-testing (frequently with flashcards) was more likely to be adopted by high-achieving students, who commonly spaced out their studying over multiple sessions. Highlighting or underlining techniques seemed to be adopted by low-achieving students, who commonly crammed their study sessions. Stronger performance was associated with longer periods of study or practice, and lower performance was associated with shorter periods of study or practice. While a majority of students claimed to believe that studying would be more productive in the morning, 84% reported studying during later hours (evenings, late night).	4/****
<i>Hoskins et al, 2017; Effectiveness of a Low-Cost, Graduate Student-Led Intervention on Study Habits and Performance in Introductory Biology</i>	USA	Non-randomized design; Recruitment of participants occurred 7 weeks into the semester (voluntary), targeting undergraduate students enrolled in an introductory biology course	Observing, questionnaires	It was found that there was a weak association between changes in study habits and the quality of work with changes in performance during lecture exams. However, this relationship seemed to only be significant during the Fall semester. The course structure implemented in this study is shown to be effective and inexpensive.	3/****
<i>Albaili, 1997; Differences Among Low-, Average- and High-achieving College Students on Learning and Study Strategies</i>	United Arab Emirates	Quantitative descriptive design; LASSI questionnaire was administered (exact time not specified) to undergraduate students (n=168). GPA was used as an index of college academic achievement.	Questionnaire (n=168)	In terms of questionnaires, it was found that those that scored lower were low-achieving students, with higher scores being associated with average or high-achieving students. No significant differences were seen between the average or high-achieving student groups in terms of scoring. This study showed that Motivation was considered an important characteristic that separated low-achieving students from high-achieving students.	4/****

<i>Willman et al, 2014; On study habits on an introductory course on programming</i>	Finland	Non-randomized design; Literature review on online assessments and student activity patterns. Examining student short-term study habits on an online platform.	Observation	This study showed that students who finish their work early and do not work during weekends or at night tend to have higher grades. Those who earn lower grades differ in these behaviours, but have more enrichment in comparison to those that work at night. Additionally, tutorial periods that incorporate assignment introductions and assignment solving sessions increase the amount of assignments that are submitted. This structure may aid in preventing students that may otherwise fail the course due to completing assignments near their respective deadlines.	3/****
<i>Karpicke et al, 2011; Retrieval practice produces more learning than elaborative studying with concept mapping</i>	USA	Randomized controlled trials design; Tested retrieval practice	Observation	It was found that retrieval practice through retrieval-specific techniques enhanced learning in comparison to other elaborative study techniques. The findings show that retrieval practice is an effective approach when referring to conceptual learning in science.	2/****
<i>Nonis et al, 2010; Performance of College Students: Impact of Study Time and Study Habits</i>	USA	Quantitative descriptive design; Modified questionnaire was administered to undergraduate business students (n=201).	Questionnaires (n=201)	Both positive and negative relationships of study habits on student performance were observed. Particularly, it was found that 1 study habit would mediate the relationship between student performance and study time in a positive manner, but another would do so in a negative manner.	4/*****
<i>Ye et al, 2016; Can they succeed? Exploring at-risk students' study habits in college general chemistry</i>	USA	Non-randomized design; observed students in 12h increments (n=301)	Observation (12h periods)	A reduction in the difference between at-risk students and students not at risk can be done through high frequency studying. It was found that high frequency studying is not fairly related to quality of studying, yet both of these factors can play a role in the performance of an at-risk student. These findings can be used as a basis to create further avenues to improve student success.	3/***

<i>Yip et al, 2007; Relationship of Study Strategies and Academic Performance in Different Learning Phases of Higher Education in Hong Kong</i>	China	Quantitative descriptive design; LASSI questionnaires (30min) were administered to undergraduate students	Questionnaires	Those with high academic achievement in Matriculation and those with low academic achievement in Matriculation have study habits that differ significantly. This particular case, however, was not seen at University. The effective strategies outlines in Matriculation therefore may not be applicable and work effectively in a university setting.	4/*****
<i>Bickerdike et al, 2016; Learning strategies, study habits and social networking activity of undergraduate medical students</i>	Ireland	Quantitative descriptive design; ALSI and demographic questionnaires were administered to medical students in year 2 and final year undergraduate-entry and graduate-entry medical students (n=376)	Questionnaires (n=376)	While surface learning should be discouraged, effort management and organised studying should continue to be put forward. This implementation can optimise academic performance in medical schools. Poor study habits seem to be correlated with the excessive use of social networking, and further contributes to reduced academic achievement.	3/*****
<i>Boswell, 2016; The Role Of Study Strategy Use, Meaning In Life, And Grit On The Academic Success Of University Students</i>	USA	Quantitative descriptive design; LASSI-2 was administered to 249 undergraduate students enrolled in psychology classes	Questionnaires (n=249)	Results show that the types of study strategies implemented by students accounted for 31% of the variance in GPA, and grit accounted for 4% of additional variance.	4/*****
<i>Broekkamp et al, 2007; Students' Adaptation of Study Strategies When Preparing for Classroom Tests</i>	Netherlands	Qualitative design; Review of multiple studies to develop a model to further stimulate research on strategy adaptation.	Studies	Students of various ages and grade levels can adapt their study strategies to accommodate different tasks to some extent, there are still big issues regarding the types of study strategies used and environmental impact in implementing these strategies. Authors suspect that the conditions of test preparation in the classroom do not support or promote the adaptability of study strategies.	1/*****
<i>Brown, 2017; An evidence-based analysis of learning practices: the need for pharmacy students to employ more effective study strategies</i>	USA	Qualitative design; Review of multiple studies to understand learning practices (focusing on pharmacy students)	Studies	Approaching material with study strategies consisting of superficial understanding and memorization techniques can be detrimental to professional growth. Faculty members should guide students in implementing more effective evidence-based study strategies.	1/*****

<i>Chen et al, 2015; The Relationship Among Academic Self-concept, Learning Strategies, and Academic Achievement: A Case Study of National Vocational College Students in Taiwan via SEM</i>	Taiwan	Quantitative descriptive design; Questionnaires were administered to national vocational college students (n=407)	Questionnaire (n=407)	Encouragement from high level educators has been shown to increase students' motivation to learn material, efficiency, and self concept. Academic self-concept has a positive effect on and may possibly predict academic achievement. Students showing high levels of self-concept also demonstrate having internal motivation to participate in learning.	4/***
<i>Costello, 2011; Achievement goals, interest, study strategies, and academic achievement</i>	USA	Quantitative descriptive design; Cluster analysis was used to examine study strategies of undergraduate students enrolled in introductory biology (n=119) and introductory psychology (n=57) courses	Questionnaire (n=176)	Students' mastery, performance-approach and performance-avoidance goals used to construct four achievement goal profiles.	4/****
<i>Cukras, 2010; The Investigation of Study Strategies that Maximize Learning for Underprepared Students</i>	USA	Non-randomized studies, 13 weeks, 19 Bronx Community College students	Bronx Community College's freshman-level textbook chapters, including open discussion and tests on topics	Certain strategies were found to improve learning compared to others. These results were found through teachers meeting with students on an individual basis and discussing test performance and strategies selected.	3/***
<i>Dill et al, 2014; The Use of the LASSI (The Learning and Study Strategies Inventory) to Predict and Evaluate the Study Habits and Academic Performance of Students in a Learning Assistance Program</i>	USA	Quantitative descriptive design; LASSI questionnaires (3h) were administered to students enrolled in four sections of a class called "Fundamentals of Achievement: Applications to College, Work, and Life) (n=145)	Questionnaires (n=145)	Over the course of the study, students' understanding and use of study strategies improved according to questionnaire results. Students identifying as having less anxiety were more likely to avoid suspension.	4/*****
<i>Dunlosky, 2013; Strengthening the Student Toolbox: Study Strategies to Boost Learning</i>	USA	Qualitative design; talks about all the different learning strategies (ex. Highlighting, testing, etc.)			1/*****

<i>Fleming, 2002; Improving Students' Exam Performance by Introducing Study Strategies and Goal Setting</i>	USA	Quantitative descriptive design; Questionnaires were administered to first-year students in 2 sections of introductory psychology (n=65)	Questionnaires (n=65)	Students in the control group overall scored lower on the first two and last exams, with insignificant differences for the third exam. First year students in the treatment group performed similarly to upper year students on all four exams, demonstrating comfort in new tools supplied for learning.	4/****
<i>Foot, 2010; Student-Generated Higher Order Questioning as a Study Strategy</i>	USA	Randomized controlled trials design; Created peer treatments to test student-generated higher order questioning as a study strategy. Implemented to students (n=120) in an introductory psychology course at a private university	Observation	There is no support indicating that one treatment option results in higher cognitive activity on the continuum with guided questions scoring requiring greater amount of mental effort and connections between concepts formed, compared to lower-order or fact-listing questions.	2/****
<i>Foutz, 2018; Collaborative Argumentation as a Learning Strategy to Improve Student Performance in Engineering Statics: A Pilot Study</i>	USA	Investigated if collaborative argumentation is a strategy that can improve student understanding. Implemented in a sophomore-level engineering course (n=60) with 75min lecture sessions twice a week, followed by a 50min problem solving session once a week	Observation (total of 15 weeks)	Argumentation improves student performance according to test scores, although students demonstrate doubt in the argumentative learning strategy. Students in both treatment groups had similar levels of confidence in their ability to complete the course.	3/***
<i>Gallagher, 2020; Using "Make & Take Quizzes" to Improve Exam Performance and Engage Students in Effective Study Strategies</i>	USA	Non-randomized design; Examined effectiveness of in-class quizzing strategy. Compared groups of students that completed (n=74) and did not complete (n=73) Make & Take Quizzes.	Testing	Students provided Make & Take Quizzes significantly outperformed students who did not receive the quizzes. Students' overall study strategies did not change, but there were slight changes in two study strategy categories of identifying main ideas of concepts and paraphrasing.	3/***
<i>Gatto, 2010; Learning and Study Strategies of Baccalaureate Nursing Students during First Semester Nursing Courses</i>	USA	Quantitative descriptive study, 133 students at two baccalaureate nursing programs in a southern state	Questionnaire (n=133)	Factors of age, number of transfer credits and learning and study strategies did not identify academically at-risk students. Having a higher GPA lowered the risk of being academically at-risk, while belonging to a minority or identifying as ESL increased the risk.	4/****

<i>Geller et al, 2017; Study strategies and beliefs about learning as a function of academic achievement and achievement goals</i>	USA	Quantitative descriptive design; AGQ questionnaire was administered to undergraduate students enrolled in a introductory biology course (n=1039, with only 931 completed successfully)	Questionnaires (n=931)	High academic achievers were found to implement more self-testing strategies, less likely to study last minute, and more likely to plan a study schedule in advance. Achievement goals were strong predictors of specific study behaviours. Avoidance goals were correlated with increased last minute studying. Individual differences in student achievement and reasons for achievement can predict study strategies used.	4/****
<i>Hagemeier et al, 2011; Student Pharmacists' Perceptions of Testing and Study Strategies</i>	USA	Quantitative descriptive design; A survey was administered to first, second, and third year doctor of pharmacy students (n=425)	Survey	The main purpose of tests according to students was to assess the amount of material learned. A common technique used to study for exams was massed practice, while retrieval techniques were a lot less used.	4/*****
<i>Husmann et al, 2019; Another Nail in the Coffin for Learning Styles? Disparities among Undergraduate Anatomy Students' Study Strategies, Class Performance, and Reported VARK Learning Styles</i>	USA	Quantitative descriptive design; VARK questionnaires were administered to undergraduate students enrolled in a basic human anatomy course (n=426)	Questionnaires (n=426)	Most students did not report the same study strategies as the ones found in their VARK assessment. Student performance was not correlated with their score in the questionnaires. Other unrelated study strategies were found to have a positive correlation with their final grade.	4/****
<i>Khalil et al, 2018; Learning and study strategies correlate with medical students' performance in anatomical sciences</i>	USA	Quantitative descriptive design; LASSI questionnaires were administered to medical students of classes 2016, 2017, and 2018 (n=180)	Questionnaires (n=180)	There were significant correlations found between five out of the ten LASSI subscales: anxiety, information processing, motivation, selecting main idea and test strategies. Students lacking these skills were identified and communicated with, which resulted in improved academic achievement and test scores.	4/*****

<i>Lopez et al, 2013; Self-regulated learning study strategies and academic performance in undergraduate organic chemistry: An investigation examining ethnically diverse students</i>	USA	Qualitative design; Investigated study strategies of ethnically diverse students by collecting study diaries, concept maps, problem sets, and final course grades.	Observation	Results show that the most common reviewing-type study strategies practiced by students were similar across all ethnic groups. These common strategies had little effect on students' problem solving, concept mapping, or course performance. Although students knew of the benefits of metacognitive and peer learning strategies, these strategies were not implemented.	1/*****
<i>Nist et al, 2010; Measuring the affective and cognitive growth of regularly admitted and Developmental Studies students using the Learning and Study Strategies Inventory (LASSI).</i>	USA	Quantitative descriptive study, duration?, 71 regularly-admitted students volunteering to enroll in study strategies course at University of Arizona, 168 developmental studies students mandarily enrolling in study strategies course at University of Georgia	LASSI tests administered throughout duration of the course (n=71+168)	Authors found that there was both cognitive and affective growth experienced by regularly admitted and developmental students. All LASSI scales were not good predictors of success in course work.	4/****
<i>Martins et al, 2019; Intervention in Learning Strategies: Study with New University Students</i>	Brazil	Quantitative non-randomized design; Psychoeducational intervention programs were analyzed in students (n=83) through questionnaires	Questionnaire	Qualitative differences in data was collected which allows the authors to reflect on the relationship between enrolling in higher education and the benefit of teaching self-regulated learning strategies within the first year of graduation.	3/****
<i>Ross et al, 2006; College Students' Study Strategies as a Function of Testing: An Investigation into Metacognitive Self-Regulation</i>	USA	Quantitative descriptive design;		Students who anticipated exam questions that required deep-level processing used more deep-level strategies, while students anticipating exam questions requiring surface-level knowledge implemented more memory-related study strategies.	4/****
<i>Sebesta et al, 2017; How Should I Study for the Exam? Self-Regulated Learning Strategies and Achievement in Introductory Biology</i>	USA	Quantitative descriptive design; Questionnaires were administered to students enrolled in an introductory biology course (n=414)	Questionnaire (n=414)	High academic achievers and students who experienced an improvement in exam grades used more specific cognitive strategies more. Low academic achievers reported not implementing the strategies they planned to use, or did not help significantly when used. The authors concluded that students entering introductory biology are unfamiliar with learning strategies and the best methods to implement them to maximize results.	4/****

<i>Senko et al, 2013; Achievement goals, study strategies, and achievement: A test of the "learning agenda" framework</i>	USA	Quantitative descriptive design;		MAP goals produce more deep learning strategies to be implemented. In study 2, MAP and PAP goals were found to both be beneficial to academic achievement.	4/***
<i>Overwalle et al, 1990; The effects of attribution-based intervention and study strategy training on academic achievement in college freshmen.</i>	Belgium	Randomized controlled trials design; Investigating the effectiveness of remedial programmes on freshmen academic performance (n=43). 43 watched video-taped interviews with senior students relating the causes of their failures at the beginning of the first year, and how they had managed to improve their exam scores at the end of the year. 57 learned conventional rules of study strategy use and applied them during short practice trials.	Observation, questionnaire	Attribution video manipulation increased the percent of students who passed the final exam (18% for the first study and 20% for the second study) compared to the control group who did not receive exposure to this variable. The learning strategy course did not produce a significant effect on academic performance.	2/****
<i>Yip et al, 2002; Relation of Study Strategies to the Academic Performance of Hong Kong University Students</i>	China	Quantitative descriptive design;	Questionnaire (n=100)	High academic achievers and low academic achievers differed in scores for the motivation, scheduling, and selecting main ideas categories. The results found in this study may apply differently to students in Western vs. Asian universities due to the relationship to students' intrinsic disposition like motivation and concentration.	4/****
<i>Yip, 2009; Differences between high and low academic achieving university students in learning and study strategies: a further investigation</i>	China	Quantitative descriptive design;	Questionnaire (n=100)	High academic achievers ranked higher on all categories, including anxiety, attitude, motivation, concentration, self-testing, scheduling, study aids, information processing. There were similar results despite the mode of learning (conventional vs. distance-learning).	4/****
<i>Yip, 2007; Differences in Learning and Study Strategies between High and Low Achieving University Students: A Hong Kong study</i>	China	Quantitative descriptive design;	Questionnaire (n=180)	High academic achievers had different study strategies than low achievers, with females scoring higher than males. A good learning attitude, self-motivation and proficiency in adapting better learning and study strategies were correlated with higher academic achievement.	4/*****