



Study habits of Greek university students: effects of gender, age, academic discipline, and handedness: A review study

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Abstract

The disparities in students' learning approaches hold considerable importance, particularly the divide between "deep" and "surface" approaches. The former entails a comprehensive understanding of the subject matter, critical evaluation, and recognition of its significance, while the latter involves memorization for practical purposes without considering the broader context or value of the content. Although there is a prevalent belief that the implementation of the Revised Approaches of Studying Inventory (RASI) lacks consistency, an endeavor is undertaken to quantify the diverse methodologies. The objective of this study was to assess the factor structure of a pre-existing instrument, known as the Revised Approaches to Studying Inventory (RASI), among a group of undergraduate students in Greece. This was achieved by examining the influence of variables such as gender, age, academic discipline, and handedness on students' study habits. The study population comprised individuals who were currently enrolled in diverse academic programs.

The study had a total of 452 freshmen enrolled at a Greek university, which was classified as a medium-sized



institution. The present study focuses on the methods employed and the conceptual framework utilized in the research. A factor analysis was conducted to evaluate a shortened version of the RASI consisting of thirty items. The study revealed the presence of five distinct factors, namely academic self-confidence, metacognitive awareness, deep approach, strategic approach, and surface approach. A mixed-design analysis of variance (MANOVA) was conducted for each of the RASI scales. The concluding remarks and recommendations are outlined as follows: The outcomes of the MANOVA revealed statistically significant affects of sex on strategic approach and faculty on academic self-confidence. A statistically significant two-way interaction was seen between sex-6 handedness and strategic approach. Additionally, a statistically significant three-way interaction was found between sex-6 age faculty and deep approach. Both of these interactions exhibited statistical significance.

### Introduction

The primary focus of this study has been devoted to the examination of Marton and Saljo's (1976) conceptualizations pertaining to the distinction between deep and shallow learning strategies. The learner demonstrates a proactive approach to understanding the material by contextualizing it appropriately, taking a critical perspective, and acknowledging its underlying significance. The provided statement exemplifies the utilization of the deep approach.



This approach might be likened to a superficial method that focuses on imparting knowledge by memorization or repetition, mostly aimed at achieving goals that are not directly related to the content being taught, such as achieving high scores on assessments. This approach involves the dissemination of knowledge with the aim of achieving the aforementioned objectives. Furthermore, a strategic approach has been recognized, wherein the significance of structured learning and incentives for achievement is paramount.

Self-report questionnaires have been widely employed in numerous research to assess the studying habits of participants. The study conducted by Entwistle and colleagues in the United Kingdom, which bears similarities to the research conducted by Biggs in Canada and Australia, resulted in the development of several measures aimed at identifying discrepancies in the study strategies employed by individual students. The tools in question have been developed within a "atheoretical quantitative" framework, drawing upon psychometric processes that encompass a wide range of research methodologies (Biggs, 1993). Moreover, these psychometric tools provide a diverse range of study methodologies.

In contrast, the ASI (Entwistle & Ramsden, 1983) assesses a more limited scope of five characteristics, namely: meaning orientation, replicating orientation, attaining orientation,



non-academic orientation, and self-confidence in ability. The RASI, developed by Entwistle and Tait in 1995, assesses six distinct characteristics. These categories include deep approach, surface approach, strategic approach, lack of direction, academic self-confidence, and metacognitive awareness of studying. There exists a hypothesis, as proposed by Kember (1996) and Sadler-Smith & Tsang (1998), suggesting that individuals may possess varying levels of comprehension about the fundamental principles underlying these extensively utilized instruments. Different cultures possess distinct methods of conceptualizing memory, a fundamental element of the surface approach and the process of repeating orientation as outlined by ASI and RASI (Richardson, 1994).

Furthermore, Tait and Entwistle (1996) argue that within academic circles, there is a comprehensive understanding of the concepts of deep, surface, and strategic approaches, whereas other strategies do not garner the same degree of implementation or acknowledgment. According to Duff (1997), a modified version of the RASI is proposed, which places emphasis on the elements that are linked to these three study methodologies.

The main aim of this study was to assess the factor structure of the Revised Academic Self-Efficacy Inventory (RASI) using a sample of undergraduate students who are pursuing a major in Greek. The educational system in Greece is



characterized by a strong emphasis on instructional approaches that integrate comprehension and memory, leading to the emergence of a clear and distinct educational landscape. The study's second purpose was assessing the impact of gender, age, academic discipline, and handedness on students' learning processes.

Richardson (1995) posits that there exists a dearth of research pertaining to the influence of gender and age on research methodologies. The researcher observed significant statistical associations between age and scores on the deep approach when comparing the methodologies employed by mature and immature students. Based on Clarke's (1986) findings, it was seen that males exhibited a statistically significant higher mean score in the domain of Strategic orientation compared to females. Additionally, an inverse relationship between age and accomplishment motivation was identified, indicating a decrease in motivation among older students. Furthermore, Clarke's research revealed a substantial disparity in accomplishment motivation among younger students based on gender.

In a study conducted by Sadler-Smith (1996), age was examined as a categorical variable within a sample from the United Kingdom. The results indicated that mature students exhibited a greater inclination towards a "deeper" approach in comparison to non-mature students. Conversely, non-mature students were more likely to adopt a surface



approach. These findings were stated on page 376 of the study. The determination of this phenomenon was made by Sadler-Smith, who observed that mature students exhibited a more profound approach compared to their non-mature counterparts. The user's text, "302," does not provide any context or information to be rewritten E. Andreou et al. Male participants reported employing a more "profound" approach compared to their female counterparts. However, this distinction did not yield any discernible improvements in the learning performance measurements that were utilized. Sadler-Smith and Tsang (1998) conducted a two-way analysis of variance (ANOVA) on a sample of undergraduate students in Hong Kong, examining the interaction between age and gender. The researchers discovered that, in contrast to female students, mature male students had a greater inclination towards adopting a deep approach, as seen by their higher results, as compared to nonmature male students. The aforementioned observation was corroborated by the evidence that adult male students exhibited greater results on the comprehensive approach compared to their non-adult male counterparts. Similar interactions to those found were also present within the strategic approach. The results indicated that male participants with higher levels of maturity achieved higher scores compared to those with lower levels of maturity. In contrast, female participants with lower levels of maturity



achieved higher scores compared to those with higher levels of maturity. Based on the findings of Sadler-Smith's study conducted in 1996, no evidence has been reported about the presence of an interaction effect between age and gender within a sample from the United Kingdom. The findings of Richardson (1994) align with this outcome, as they revealed no compelling evidence of substantial differences in techniques employed by boys and girls across different age groups, as shown by the short-form ASI. This outcome aligns with the findings of Richardson.

Based on the findings of Entwistle and Ramsden (1983) as well as Harper and Kember (1986), it was observed that students who engaged in arts courses shown a greater propensity for adopting a comprehensive approach towards their academic pursuits, in comparison to their counterparts enrolled in scientific programs. According to a more recent study conducted by Jacobs and Newstead (2000), it has been found that the aforementioned variances cannot be solely attributed to factors such as gender, age, or the perceived value of different knowledge domains. Other factors, including the development of skills and accumulation of experience, also play a significant role in explaining these variations.

Although several studies have established a correlation between handedness and variations in students' learning abilities (O'Boyle & Benbow, 1990; Coren, 1995; Martino &



Winner, 1995), the impact of handedness on the manifestation of study strategies remains unexplored. This phenomenon persists despite the extensive validation of this correlation through multiple research studies.

Handedness is a prominent manifestation of lateralization, denoting the extent to which specific tasks are commonly performed using either the right or left hand. There exists a potential correlation between handedness and patterns of brain structure, as evidenced by the observed differences in hemispheric asymmetries among individuals with different handedness orientations.

The variable of handedness is a significant component that exhibits an interaction with gender and is frequently employed in extensive datasets to investigate the disparities in hemispheric asymmetry that manifest among various cohorts of individuals.

Based on the hemisphericity idea, each individual have a distinct cognitive processing preference that is predominantly utilized. The manner of processing is determined by the relative level of activity in the cerebral cortical hemispheres. According to Herrmann (1990), individuals who possess a dominant right hemisphere tend to adopt a holistic, intuitive, creative, symbolic, and emotive approach to their academic pursuits. Conversely, those with a dominant left hemisphere tend to adopt a rational, analytical, sequential, ordered, planned, and structured





approach to their studies. This perspective holds significant prominence. Although the aforementioned "strong" interpretation may lack positive merits, it is plausible that alternative, "weaker" forms of hemisphericity could prove highly advantageous. Based on a study conducted by Hellige (1993), it is evident that individuals tend to opt for the processing mode associated with the hemisphere of their brain that they see as being more congenial to them, given the chance. Individuals with diverse handedness have the capacity to acquire knowledge through distinct approaches, as they engage various mechanisms in each hemisphere to facilitate their respective learning strategies.

## Discussion

The current analysis does not provide complete validation for the factor structure of the RASI short version as created by Duff (1997). Our study has identified two additional orientations, namely academic self-confidence and metacognitive awareness, in addition to the three primary orientations of "deep," "surface," and "strategic." Academic self-confidence refers to an individual's belief in their own capacity to derive meaning and purpose from the learning process. On the other hand, metacognitive awareness pertains to an individual's consciousness of their own study efforts and recognition of the significance of memorization as a learning skill. Both of these approaches are commonly



known as "self-efficacy in finding purpose in learning." Hence, the assertion put out by Kember and Gow (1990) that it is reasonable to presume that all children in Western societies are instructed in both the profound/meaningful and superficial/reproductive aspects is contradicted by the findings of our investigation (Marton & Saljo, 1976, p. 356). The concept of meaning and memorization in Greek culture appears to be subject to diverse interpretations. Understanding the causal relationships between different pedagogical methods to learning and students' academic achievements is a crucial aspect for future research.

The RASI version utilized in this study offers a robust and possibly valuable framework for future research on the educational experiences of Greek students. Based on the fundamental impact of gender on strategic approach, male students tend to regard themselves as diligent individuals who possess clear study goals, provide access to essential resources and conducive environments for achieving success, and exhibit a generally structured disposition. This finding is consistent with the discoveries reported by Clarke (1986), and it can be attributed to the predominance of men in positions of authority within the realm of higher education (Sadler-Smith, 1996). The observed disparity in scores on the strategic approach among female students is likely attributable to this factor. This phenomenon can be attributed to the fact that a greater proportion of girls



compared to boys have atypical patterns of hemispheric asymmetry, as noted by Bryden (1982). The observed disparity in female students' performance on the strategic approach may be attributed to the preference of this cognitive process for the left hemisphere, which is characterized by organization, planning, and sequential thinking. This finding suggests that there are gender differences in learning styles, with a lower proportion of women opting for left-hemisphere-based cognitive processing strategies compared to males.

It has been observed that students pursuing humanities subjects tend to exhibit a greater degree of academic self-confidence compared to their counterparts in other fields of study. This disparity in self-confidence levels can be attributed to the impact of faculty members on the development and reinforcement of students' academic self-confidence. These students hold the belief that they possess high levels of intelligence, astuteness, and capability to effectively fulfill the intellectual and academic requirements associated with their educational pursuits. Ramsden and Entwistle (1981) suggest that this concept appears to be more prevalent in academic settings characterized by inclusive and supportive departmental cultures, as well as reasonable workloads. Jacobs and Newstead (2000) propose that individuals may exhibit pre-existing studying



orientations prior to commencing their academic pursuits at a higher education institution.

The observed significant interaction between gender and handedness on the Strategic approach provides empirical support for the hypothesized relationship. The strategic method employed in our study reveals a correlation between gender and handedness, which aligns with established knowledge regarding variations in learning methods and brain function (Gordon, 1986). The potential explanation for the higher strategic approach scores observed in left-handed females, as reported in the study conducted by Andreou et al. (2018), may be attributed to the differences in "hemisphericity" between groups categorized by handedness and gender. Based on a study conducted by Gabbard et al. (1997), individuals who exhibit left-handed writing are believed to possess reduced lateralization and a lesser degree of major hemispheric asymmetries compared to right-handed individuals. As a result of this phenomenon, it is plausible that women who are left-handed may exhibit superior proficiency compared to individuals of different handednesses and genders in employing tactics that reflect characteristics associated with left-brain dominance.

Moreover, it appears that a student's age, gender, and chosen academic discipline significantly influence the extent to which they engage with their course materials.



The observed disparities indicate that mature male students in the field of applied sciences exhibit a proclivity to contextualize concepts within their studies and engage in critical examination of ideas, as opposed to their less mature counterparts in the same field and students of both genders pursuing humanities studies. In contrast, students in the humanities tend to exhibit a higher propensity for accepting ideas without engaging in initial critical examination. Furthermore, it was observed that older women from both academic disciplines exhibited a more profound attitude as compared to their younger counterparts who were pursuing studies in the humanities. This phenomenon was observed to be consistent among individuals of all age cohorts.

The observed disparities indicate that a significant proportion of older students are driven by intrinsic objectives, aligning with previous research conducted by Richardson (1995), Sadler-Smith (1996), and Sadler-Smith & Tsang (1998) on same subject matter. However, these inequalities might be attributed to factors such as the specific requirements of the degree programs and the gender composition of the student population.

Our research findings suggest that instructors in higher education should take into account many factors such as gender, age, academic field, and handedness while creating and presenting classes, as well as providing guidance to



their students. This holds particularly true within the realm of higher education, wherein it is anticipated that all students, irrespective of their unique characteristics, adhere to the subsequent expectations: (a) demonstrate proactive engagement in their educational pursuits; (b) avoid excessive dependence on instructors; (c) acknowledge that a learner-centered approach to education necessitates active involvement rather than passivity; and (d) acknowledge that the pursuit of knowledge should be driven by personal satisfaction, intellectual development, and enjoyment, in addition to assessment objectives. Educators face a considerable burden to engage in ongoing research not only on specific study methods but also on the broader concept of "learning styles," leading to a substantial demand for resources within educational institutions (Andrews et al., 1994; Sadler-Smith, 1996). The findings of this research study offer empirical evidence endorsing the utilization of tools such as the RASI within the context of Greek higher education, with the aim of fostering self-awareness among students. This initiative serves as a precursor to fostering dialogue, collaboration, and adaptability between educators and learners with respect to instructional and educational approaches. There is a potential for this phenomenon to gradually influence the perception of learning among specific students, leading them to perceive it as a superficial endeavor.



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