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Kuhlmann Lüdeke, Angelika; Sánchez Zúñiga, María Claudia
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Educational Alignment: Learning – Teaching Approaches as Influencing Factors

Alineamiento educacional: abordajes de aprendizaje y enseñanza como factores influyentes

Angelika Kuhlmann Lüdeke [1]
Pontificia Universidad Javeriana, Colombia
kuhlmannangelika@gmail.com

María Claudia Sánchez Zúñiga [2]
Pontificia Universidad Javeriana, Colombia

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Abstract:

Innovations in medical curricula require a thorough evaluation of all aspects playing a role in the complex interrelations between learners—teachers—educational context. Among these numerous factors, the congruency of the educational alignment is of upmost importance. To evaluate this alignment, two essential components need to be examined: the learning approach of students (deep approach vs surface approach) and the teaching approach of staff members (student centered approach vs teacher centered approach). The results obtained can be used to determine if the learning objectives and the educational interventions are properly aligned to assure a high quality program, fostering self-directed and life-long learning professionals. The literature here presented can serve the purpose of encouraging institutions undergoing curricular changes into analyzing important aspects that were commonly ignored in more traditional programs.

Keywords: educational alignment, learning approach, teaching approach.

Resumen:

La implementación de innovaciones en programas académicos de medicina requiere evaluar los aspectos que cumplen papeles fundamentales dentro de la compleja relación del sistema estudiante-docente-contexto educativo. El objetivo del artículo es determinar si los objetivos de aprendizaje y las intervenciones educativas concuerdan con el alineamiento educativo. Este se puede evaluar explorando el abordaje del aprendizaje adoptado por los estudiantes (profundo vs. superficial) y el abordaje de enseñanza adoptado por los miembros del cuerpo docente (centrado en estudiantes vs. centrado en docentes). Un alineamiento entre estos factores asegura una mayor calidad del programa educativo, que fomenta el desarrollo de profesionales con capacidad de autoestudio y autorregulación, en busca de aprendizajes significativos continuos a lo largo de la vida. Así mismo, programas en proceso de cambios curriculares deben evaluar estos aspectos que antes no estaban en los currículos tradicionales.

Palabras clave: alineamiento educacional, abordaje del aprendizaje, abordaje de la enseñanza.

Introduction

A time of innovations in medical curricula requires evaluation of the current educational activities, especially when planning major changes from traditional teacher-centered programs to modern student-centered models. Teachers in higher education need to (re)examine their traditional assumptions on education, in order to foster the desirable incorporation of new learning and teaching strategies [1,2].

Among the aspects that should be examined in this evaluation process are the students' approaches to learning and the teachers' approaches to teaching. It is important to determine if education is conceived as a transmission or accumulation of information or as a restructuring of the gained information to elicit

Author notes

1 MD, MHPE. Assistant professor, Department of Morphology, Faculty of Medicine, Pontificia Universidad Javeriana, Bogota, Colombia.

2 MD. Assistant professor, Department of Morphology, Faculty of Medicine, Pontificia Universidad Javeriana, Bogota, Colombia.

Correspondence. Angelika Kuhlmann Lüdeke. kuhlmannangelika@gmail.com

conceptual changes [3]. The results of the evaluations can serve several purposes: inform policy makers and academic staff about current teaching and learning approaches, suggest improvements in practice and apply adequate methods and changes to become more effective professionals [4]. Teaching and learning activities need to be properly aligned in order to optimize the learning environment and thus, assure a high quality program [5]. This alignment consists in achieving optimal congruence between clear learning objectives and appropriate educational interventions to reach these objectives [6]. Supporting this statement are the papers by De Vita and Cook demonstrating that incongruence between teaching and learning styles constitute an impediment for meaningful learning [7,8].

A congruent alignment between approaches of both students and teachers is necessary for the most effective educational gain [1]. In order to guide and stimulate students towards becoming self-directed, reflective, and life-long learning professionals, teachers need to focus on supporting and guiding students in their development of knowledge, skills and attitudes and in achieving their goals, instead of focusing on transmitting enormous amounts of factual knowledge. In addition, educators need to make sure that the context of the educational environment does stimulate and guide students towards the adoption of these learning abilities or habits [3,9].

Student Approach to Learning Theory

During the last four decades, several authors have conducted research in the field of students' perceptions and the activities related to their learning, as the focus point of the teaching/learning system [10,11,12,13,14]. This served as framework for what is known as the *Student Approach to Learning (SAL) theory*. Learning Approach (LA) makes reference to the student's perspective of the educational context and the intentions in relation to his/her learning activities. Students who possess knowledge of different learning approaches and are made conscious of their own choices can apply various cognitive strategies to enhance their learning and their level of academic satisfaction [15].

SAL theory states that the learning approach of students depends on the complex relationship between their motives for learning, their perceptions of the demands required by the task at hand, the teaching methods of their educators and the educational context in which they are enrolled [5]. Learning is considered a process that is susceptible to shaping, where dynamic interactions occur among the student, his/her motives and the perceived learning environment [16].

As a way of depicting this complex and dynamic process in a simplified manner, Biggs designed the *3-P Model: Presage-Process-Product* [10,17]. Within this model, to be explained next, all factors addressed in the SAL theory have a place in one of the levels.

Presage Level

This level includes factors that were present prior to the engagement with the learning task and shows the variability among individuals involved in a given academic context. On the side of the student, the prior knowledge, abilities and preferred learning strategies are included. On the side of the teacher, the influencing factors are the content to be taught, the learning objectives focused on, the conception of the professional role and the institutional climate.

Process Level

This level includes the learning activities (e.g., context of instruction, teaching strategies, assessment methods), also referred to as the ongoing approach to learning, with which the student engages to handle a specific task. This level is highly influenced by the factors of the presage level.

Product Level

This level refers to the learning outcomes achieved and these strongly depend on the factors of the two previous levels and their interactions. Since it describes the educational circumstances, it is also referred to as the contextual approach of students.

Approaches to Learning

Research has identified two approaches to learning: the surface and the deep approach. The first study to identify these two approaches was conducted by Marton and Säljö among students in a reading assignment, but these findings have been further confirmed across other subject area by different authors [10,12,18,19]. The learning approach taken by students primarily addresses aspects of the process level in the 3-P model, but it is highly influenced by factors from the presage and product levels.

Surface Approach

Students who use the surface approach experience the activity of learning as a duty, necessary to pass a given course [20,21]. The effort is placed on rote learning and bound to the syllabus, with the absence of integration across concepts and topics [22]. This results in a fragmented and superficial understanding of isolated ideas [20,23,24,25].

According to the 3-P model, the learning approach of a student is influenced by the educational context and vice versa. With regard to the surface approach, significant correlations have been found between this approach and the number of contact/study hours, demonstrating that the relationship between workload and the use of surface approach are reciprocal [26,27]. In other words, students who actually have an excessive workload tend to apply a surface approach and students who apply a surface approach usually have a heavy workload. However, it might not be the actual number of contact hours but students' perception of the workload that affects their learning approach. In this regard, Entwistle and Ramsden conducted a study in which they demonstrated that learners who perceive the workload as excessive, tend to adopt strategies of learning oriented towards reproduction of information and recall of facts, at individual and also at class level [18]. In a later study by Trigwell and Prosser, students who perceived workload as very high and were involved in educational activities aimed at recall of facts, tended to apply a surface approach [4]. Similar findings were obtained by Duff and Mc Kinstry [16]. A study conducted among medical novice students identified three main factors promoting a surface approach, which could lead to assessment-oriented learning: high workloads with tightly scheduled contact hours, predictability of assignments and assessment methods directed at recall of factual knowledge [28]. Ramsden further supports factors such as heavy workloads, poor feedback on student progress and activities promoting rote learning as elements encouraging learners to adopt a surface approach [29].

Based on this evidence, it is clear that it is important to determine students' perceptions regarding not only the teaching context but also their workload and the assessment processes. These frequently manifest

themselves as feelings of burden, anxiety and being under pressure or stress, which inevitably lead to inappropriate learning approaches and unfavorable learning outcomes [30]. These factors have been shown to be greater determinants of the approach to learning taken by students than actual number of hours spent in class and/or studying independently [30].

Deep Approach

Students who engage in deep approach to learning are motivated by an intrinsic interest to maximize their knowledge, applying strategies to relate ideas with each other [21,22]. They have an organized and active course of action towards understanding concepts and relating them [25]. They also demonstrate a willingness to seek further evidence and apply logic to deepen the meanings of underlying issues [20,23,24]. The students who take this approach also have a greater tendency to reflect on their learning process [20].

It is worldwide accepted that it is the deep approach to learning that leads to sustained success in higher education [31]. This was further supported by the prospective study conducted specifically among medical students by Mc Manus, Richards, Winder and Sproston in which students who used the deep approach tended to have better learning outcomes and tended to apply this approach more often as they advanced through the program [32]. A deep approach is more likely to be used by students if they perceive the content as highly relevant, the teacher as being supportive and interested in their learning process and when given some degree of flexibility in regulating their own learning [16].

The authors in the field of SAL theory agree that achieving the positive outcomes fostered by the deep approach will enable students to acquire and develop the necessary skills and attitudes to prepare themselves for becoming future life-long and self-directed learning professionals. This is one of the main aims of modern medical education, and therefore, students should be encouraged to take a deep approach to learning [3,5]. However, student's approach to learning is a dynamic trait, strongly affected by the teaching strategy that is applied, the level of motivation and interest and the students' perceived contextual aspects of the course [27,33,34]. These aspects include the amount of workload, the available study time and the methods of assessment and additionally, the relevance of the content and the learning outcomes achieved [27,35]. Research evidence available has confirmed that students usually favor one learning approach but they may adopt a different approach regarded by him/her as being most suitable to cope with a given course demand and/or assessment system [36,37,38].

From these findings, it is assumed that appropriate interventions in instructional design, teaching activities and assessment programs can steer students towards desirable learning approaches. Therefore, Matick et al. support the idea that based on this body of evidence, universities need to include pertinent strategies to encourage teachers to intentionally apply educational methods conductive to the adoption of a deep approach by their learners [22]. Furthermore, this makes it necessary to determine if the students' perceptions change as a result of the interventions and if these latter ones lead to positive or negative influences on the learning process [39].

Approaches to teaching

Since students' learning approaches are strongly influenced by the teaching context, a close evaluation of the approaches taken by educators to fulfill their responsibilities within the educational process is needed. The teaching approach taken is mostly related to the process level of the 3-P Model, but it is significantly influenced by factors from the presage and product levels as well. For optimal educational outcomes, the approaches of both the teachers and the students should be aligned as closely as possible. One should strive for congruence within the program, considering the elements of the 3P Model. This "fit" provides an educational

environment that encourages students' engagement in applying the best learning approach, identified as the deep approach [5].

The challenge of good teaching is to stimulate students to apply higher-level cognitive processes instead of seeing the lower-degree academic commitment of some students as an obstacle to teaching [3]. The focus should be on aspects of the learning environment identified by the learners themselves as being most related to their approaches to learning [33]. Teachers have the responsibility of fulfilling their professional responsibilities with the approach identified as being the one most likely to be associated with higher quality learning outcomes [33]. This can best be accomplished if educators are made aware of and possess knowledge regarding learning and teaching approaches, since they will then be able to design/adjust their course for their learners [15].

Richardson states that appropriate educational interventions (such as teaching approaches and assessment methods) steer learners towards desirable responses of studying and learning [40]. In order to establish the most adequate interventions, difference in approaches have to be identified to tailor the changes in the curriculum accordingly, and to succeed in stimulating students towards the deep approach [20,25].

Authors who have studied the teachers' approaches to teaching have identified that these choices of actions are related to the conceptions educators have about teaching and learning and the perception they have of the teaching environment [19,41]. Prosser and Trigwell identified two conceptions of teaching: teacher-focused and student-focused [14].

Teacher-Focused Teaching Approach

Educators adopt the profession of teaching as the act of transmitting information from the expert teacher to the passive student. The central pivot point is based on the actions of the teacher and the strategy applied to get the necessary information across to the learners.

Student-Focused Teaching Approach

Educators are focused on eliciting a conceptual change in the way students understand and relate the ideas and concepts, through the use of optimal teaching strategies. Therefore, the emphasis is on what the students do to attain the required processes for their own meaningful learning.

In support of this concept is the study by Trigwell et al. in which a correlation between teaching and learning approaches was identified, demonstrating that students enrolled in courses imparted by teachers who employ a student-focused teaching method, more frequently apply a deep approach to their learning [33]. Furthermore, Kember and Leung's study demonstrated that the quality of the teaching and learning environments directly influences the quality and amount of work accomplished by all involved [42]. It has been shown that teachers who foment a constructive and collaborative learning environment can increase the academic demands of students without increasing their perception of workload [43].

Instruments Available

Students' approach can be explored by means of the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F), composed of 20 items answered on a 1-5 Likert scale which reflect the approach to learning (surface or deep) that students take in a given educational context [5].

The scores of this questionnaire can be used to assess if elements of the educational system (e.g. 3-P Model) are working appropriately in producing the desired results [5]. They also help define/monitor the learning approach of students to a specific context, in response to a specific teaching approach and towards a given

task (i.e., approach to learning is context specific and dependent on the perception of each student of that context). The results obtained are not to be interpreted as defining the characteristics of the individual, his/her personality nor his/her capacities and abilities [5].

The R-SPQ-2F has been translated into the Spanish language and validated by several authors in Spanish speaking countries and Latin American settings obtaining similar psychometric values as those obtained by Biggs et al. [16]. The studies used as reference for this paper were conducted in the following settings:

- In Argentina and Spain [44].
- In Mexico and Spain [45].
- In Spain [46].
- In Colombia [47].

Buendia and Olmedo found that the Cronbach's alpha of the overall questionnaire was 0.83 [44]. The Cronbach's alpha value of the surface subscale ranged from 0.57 in Montealegre and Nuñez, to 0.81 in Gargallo et al. and the Cronbach's alpha of the deep subscale ranged from 0.63 in Montealegre and Nuñez to 0.87 in Recio and Cabero [45,46,47].

Teachers' approaches towards their task was measured with the Approaches to Teaching Inventory (ATI) [48]. It consists of 16 items to be answered on a 1-5 Likert. This instrument is aimed at defining how teachers approach their profession in relation to their perceptions of the circumstances surrounding their teaching. The ATI was developed in conjunction with Bigg's Study Process Questionnaire, to study the relation between students' and teachers' approaches to their corresponding educational activity [49]. Another use it has been given is to serve as motivator for discussion among various groups of teachers, in order to raise awareness of qualitative variations in teaching approaches [50]. The ATI has been translated and validated in Spain with a Cronbach's alpha value of 0.66 for the information transmission/ teacher-focused subscale and a value of 0.74 for the conceptual change/student-focused subscale [51].

Congruent Alignment

The use of these two instruments in conjunction is considered appropriate to evaluate the educational environment, providing a view of the relationship between the components of the complex system of student-context-task. The combination of these tools helps educators gain better understanding of the learning/teaching process in a particular context, to serve the purpose of assessing and enhancing the experience of students in a particular course [40]. These results, in turn, inform the making of adjustments to a program, most suitable to reach the best possible congruent alignment between teaching/learning activities in a given context. The literature clearly demonstrates the importance of making adjustments in to-be-introduced educational interventions in congruence to the preferences and factors identified by students themselves as being the ones exerting the greatest effect on their learning approach [13,15,20,25,33,40,52]. In so forth, this proper alignment will optimize the learning processes and academic outcomes of the students.

Conclusion

In the light of the evidence and supported by authors in this field, programs need to motivate teaches and expect from them the application of educational methods that have shown to steer students towards a deep approach to learning. Teaching staff, in turn, need to make students aware of and reflect on the learning approach they are adopting and encourage them to apply higher cognitive strategies to enhance their educational processes. Findings should serve the purpose of informing staff in the making of evidenced-based

adjustments or introduction of innovations and as a stimulus for teachers to reflect, evaluate and reshape their teaching activities and strategies in concordance.

Being student-centered education the main aim of modern innovations, teachers should not only be encouraged to reflect on their activities and improve them, but they must also be properly prepared to affront the new challenges with greater confidence. The importance of working with the staff to encourage the application of higher quality approaches to teaching, conducive to students developing and/or adopting higher quality approaches to learning has been demonstrated. This strategy is expected to steer the program towards the intended goal of providing and ensuring a student-centered education.

Studies of this kind provide valuable information for all higher education institutions planning mayor changes, to design them with care on details towards proper alignment. Numerous programs across the world, where major curricular reforms towards student-centered education have taken longer to set it, can benefit from the findings of these studies on SAL theory, to plan, design and implement curricular reforms with emphasis on informed details and considering the perceptions of students, which are not regularly considered in traditional curricula.

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Additional information

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