



## ARCS: A model to foster motivation in times of the new normal

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### Abstract

The purpose of this article is to explain the importance of using ARCS model for motivation among students who have returned to face-to-face classes. Therefore, a bibliographical review was carried out by reviewing different articles related to motivation and problems in education in times of COVID-19 pandemic. Thus, the information presented in this paper is to help teachers realize the benefits of implementing ARCS model to make students more motivated, engaged, collaborative, and dynamic through a variety of strategies that can be implemented in the classroom. Finally, the results show that ARCS is a suitable model because it is cross-curricular and helps teachers to motivate students and tackle the problems left by the covid-19 pandemic in different contexts, especially in education.

### Introduction

Motivation is an issue that many teachers try to instill in their students to have meaningful learning. In the common teaching setting, it is quite difficult to maintain students motivated because of many factors that normally affect education. When COVID-19 appeared, it increased the preexisting learning situations and revealed other educational problems that were not the same for all the countries, but they affected sharply sectors of vulnerable students rather than others; which resulted in widening the educative divide. COVID-19 brought too many consequences to the entire world, and education was one of the most overwhelmed areas of society. There were problems regarding information and communication technologies because of the digital divide. Moreover, teachers were not prepared to face this new virtual learning reality and tried to tie the traditional face to face curriculum in the online educational environment. Furthermore, all learners were not in the same learning conditions due to economic and social situations and affective learning factors that resulted in low learning motivation. Nowadays, some countries are returning gradually to face to face education but this process needs to be carried out planned and structured previously. In this concern, this article addresses the pandemic affectations in education and presents the ARCS model where teachers build some external conditions to encourage and support learners' motivation. The motivational strategies which are presented in this document create the conditions to return measuredly to face to face classroom education and in this way, support learning to fill the gap in returning from a virtual learning environment not previously prepared.

### Issues regarding teaching and learning during the COVID-19

#### Learners

Many issues are affecting students' learning performance due to the pandemic. In terms of motivation Araujo *et al.*, (2021) <sup>[3]</sup> argues that most anxious students experienced greater decreases in their academic motivation because of COVID-19 isolation restrictions. This idea goes in alignment with the statements of Di Pietro *et al.*, (2020) that states that psychological factors such

as anxiety, stress and pain during emergencies and quarantines had detrimental effects on learning. These findings showed that this phenomenon is more increased in women than men. Another situation, as mentioned by Vela & Galindo, (2020) <sup>[39]</sup> is the feeling of disorientation in the learning process generated by COVID-19 which also leads to a loss of motivation. Moreover, Aretio (2021) <sup>[4]</sup> express students felt less motivated when they had to move from the face-to-face image of the teacher, his gestures and his voice, live, to a remote situation, in which sometimes everything was left in the cold text. “Less interaction with their teachers during class affects learners' learning, but also their chances of staying in school. By losing interaction with their teachers, students are at greater risk of permanently abandoning their studies” (Dobarganes, 2021, p.1) <sup>[14]</sup>. This idea is supported by CEPAL (2020) <sup>[9]</sup> which poses the risk of losing the face-to-face link that can produce tensions due to the difficulties in maintaining the pedagogical relationship and interaction. This is true in the early educational stages, especially in preschool and primary school, where there is a need to work in coordination with parents to accompany and mediate the process of learners.

In this regard, students' desertion could be the result of what has been said but also could be voluntary or forced due to economic and social factors in which a student from elementary and secondary school does not enroll in the academic year or abandon the school during the process, also a university student who does not register academic enrollment for two or more consecutive semesters of the program in which they are enrolled, as expressed by the System for the Prevention and Analysis of Dropout in Higher Education Institutions (SPADIES, 2018). When “students do not attend school, they make less progress than they would have achieved in face-to-face classes, but also forget knowledge they already had, according to evidence from other emergencies where schools have closed for long periods” (Dobarganes, 2021, p.1) <sup>[14]</sup>.

### Physical and mental Health

Another issue regarding the pandemic is students with signs of damage to their mental health which leads in some cases to suicide in children and adolescents. Dobarganes (2021) <sup>[14]</sup> explains that these effects on the emotional well-being of students should not be underestimated, since they are just as important as the impact on learning. The loss of social contact and socializing routines that are part of a student's everyday experience will take a cost. The isolation will have effects in terms of socio-emotional balance that will leave a mark, in particular, on those students with pre-existing problems in this domain. For the most vulnerable students who participate in remediation and support programs, the isolation hits them even harder. Indicatively, Giannini (2020) <sup>[18]</sup> argues that a survey conducted in the last week of March among higher education students in the United States revealed that 75% said they had experienced anxiety and depression as a result of the crisis.

### The digital divide

Due to COVID-19, students have to deal with technologies or the lack of them. In this new learning environment, there are many digital divides in terms of technology, one of them is that young people do not have the necessary equipment to support their learning (Martínez-Novillo & Alonso, 2021) <sup>[31]</sup>. The second one is related to technical skills with

hardware and software to attend classes and develop learning activities, the third one is that learners do not have enough expertise in using technologies for educational purposes. That is, this new generation is linked to digital technology because it has modified learners' ways of learning, their interests and their abilities. However, Díaz-Barriga (2020) <sup>[12]</sup> claims that this does not mean that they can learn with technology; they know how to use technologies to communicate, for the social network, but they do not necessarily use them as a learning resource.

The fourth one is the lack of connectivity which was one of the biggest limitations for motivating learners to continue in their learning process (Giannini, 2020) <sup>[18]</sup>. For instance, Plena inclusión (2020) <sup>[34]</sup> shows that the access to technological tools and internet connection in Spain were worrying due to that nearly 100,000 homes do not have internet, 500,000 children do not have a computer, which makes their educational activity difficult. Moreover, although countries of Latin America and the Caribbean have made significant progress in reducing the digital divide. They are unevenly prepared to face this worldwide crisis (Bas Vilizzio, *et al*, 2021) <sup>[7]</sup>. This fact was evidenced because the governments developed other alternatives for educational continuity, which involved the use of radio, television, the use of technologies such as WhatsApp, and the distribution of textbooks and printed packages. However, the limited evidence available on the effectiveness of these contingency plans, suggests that access to these alternative modalities has reflected the large socioeconomic gaps that characterize Latin America (Reimers, 2021) <sup>[35]</sup>.

Furthermore, there is not only the fact of not having a device with internet access at home but there is also the fact that students do not have “the support of another person who is capable of guiding the learning process” (Dobarganes, 2021, p.2) <sup>[14]</sup>. Additionally, “inequality in access to educational opportunities through digital media increases existing gaps in access to information and knowledge, which —beyond the learning process that is being promoted through distance education— it hinders socialization and inclusion in general” (CEPAL, 2020, p.7) <sup>[9]</sup>.

It is necessary to understand that these gaps decrease learners' motivation to continue learning and for those who had already had learning problems, the demotivation could increase sharply. In this regard, the digital divide must be understood from a multidimensional perspective because it is not only a difference in access to equipment but also the set of skills required to take advantage of this opportunity, which is unequal between students, teachers and family members in charge of the care and mediation of this learning process that today takes place at home (CEPAL, 2020) <sup>[9]</sup>.

### Inclusive education

As it was already mentioned there are lots of learning constraints due to the pandemic, but in terms of cognitive accessibility for those learners with any kind of limitation, the situation is worse because the environments are not easy to use or understand. “Most technological resources are designed without taking into account the comprehension difficulties of people with intellectual or developmental disabilities or the elderly, among others” (Plena inclusión, 2020, pp. 7, 8) <sup>[34]</sup>. Moreover, some families do not have enough digital skills to ensure the effective use of many technological resources, and therefore, it is difficult for them to provide support to their children with intellectual

disabilities (Plena inclusión, 2020) <sup>[34]</sup>.

### **Curriculum, pedagogy and didactics**

As a result of the COVID-19, educational approaches and methodologies needed to be revised. According to Hurtado (2020) <sup>[22]</sup>, the implementation of technology into educational processes requires that school conducts a transformation from its foundations; It is not enough to implement technological resources; the school must reinvent itself and carry out the necessary reforms for a true digital culture (p. 183).

During the worst part of the pandemic, “the closures led to the accelerated deployment of distance learning solutions to ensure pedagogical continuity” (Giannini, 2020, P.5) <sup>[18]</sup>. However, there was a disparity in teaching levels and educational purposes in educational institutions (Martínez-Novillo & Alonso, 2021) <sup>[31]</sup>. That is why traditional educational systems were trying to continue developing their approach through technologies which was a terrible mistake. In terms of Hurtado (2020) <sup>[22]</sup>, there was a failure about methodological strategies in the teaching-learning process because a face-to-face methodology cannot be applied to virtual reality. Moreover, based on this centralized and vertical perspective that “guides the work in a unidirectional way for the entire system, without giving space to curricular and didactic autonomy the only meaning of educating was to account for the content prescribed in the study plan and programs” (Chehaibar, 2020, p. 87) <sup>[11]</sup>. It is needed “a cycle of educational reforms, which allow education to be more inclusive and relevant to the needs of a world complicated by other effects of the pandemic” (Reimers, 2021, P.9) <sup>[35]</sup>.

As Barron (2020) argues the meaning of the school institution, the formal curriculum, and the disciplinary contents are far from reality, there are hegemonic teaching practices, and the academic-administrative management is tied to obsolete regulations. Therefore, online education is necessary but without changes in the educational paradigms, it would be worthless. Educational systems should make a deep analysis of the curricula, of the encyclopedic contents, of teaching, of learning, of evaluation, teaching practice and academic-administrative management to renew the methodologies implemented by teachers, where the increase in student motivation and participation in their learning process is present (Hurtado, 2020) <sup>[22]</sup>.

With the traditional learning system, there already were large gaps in learning opportunities, with the new learning environment these gaps increased more. “A part of the students could not fully incorporate themselves into online teaching and most of them transferred the traditional educational model to it, without generating a more creative, inclusive and innovative education” (Martínez-Novillo & Alonso, 2021, p.8) <sup>[31]</sup>. Students who show little concentration and persistence in online learning because they were offered high-density, very extensive and long-lasting modules or units, or poorly motivating learning activities. Also, there is a lack of student support and tutoring systems that involve motivation for participation, permanence, support for solving academic and psychological problems (Aretio, 2021) <sup>[4]</sup>. This problem was not seen at the beginning due to the need to continue providing learners education.

As a result of this poor preparation to continue learning remotely, “many students failed to learn, disengaged from learning, and others dropped out of planned activities altogether” (Reimers, 2021, p.9) <sup>[35]</sup>. Besides, the unplanned curricula to attend this new learning situation took the

information and communication technologies (hereafter ICTs) as tools oriented exclusively to the acquisition and transmission of knowledge, but incapable of participating in the social and moral goals pursued by education and society. The fact was that ICTs were not given the full meaning they have to guarantee inclusion and social equity. In that sense, it is paramount to provide teaching a comprehensive approach, where appropriate behavior is taught within the digital culture. (Hurtado, 2020) <sup>[22]</sup>.

Additionally, the online contents were not in alignment with the national curricula (Giannini, 2020) <sup>[18]</sup>. Despite these facts, an attempt to provide emotional support to students was done by teachers who reprioritized “the curriculum, engaging in a valuable exercise in rethinking what is important for students to learn” (Reimers, 2021, p. 12) <sup>[35]</sup>. On the other side, there were atypical transformations with areas of knowledge where online education was difficult to apply. For instance, learners’ physical education class, recreation and sport have had different types of impact, among which are those of a negative type and that are related to the motivation and demotivation of the student towards the physical education class in virtual mode. Therefore, Lozano, Moreno & Hernández (2020) <sup>[28]</sup> express that physical education, recreation and sport are commonly seen as an open space practice and in which some cases need to be developed in specialized sports fields or gymnasiums. However, the pandemic has generated deep transformations in the conception of the physical education class and created elements of demotivation in students in carrying it out online (Lozano, Moreno & Hernández, 2020) <sup>[28]</sup>.

### **Social and economic disadvantages**

“Non-face-to-face activity in schools has highlighted the wide gaps that exist between families and schools to develop their educational function and has highlighted the multiple forms of exclusion that limit the equalizing function that the school institution should fulfil” (Tarabini, 2020, p.152) <sup>[37]</sup>. Education through this new reality has unveiled that it is not a right of every human being and becomes a commodity that can only be acquired by those who have economic and technological resources. (Gómez-Arteta & Escobar-Mamani, 2021) <sup>[20]</sup>.

Due to the economic crisis as a result of the pandemic, the vast majority of the population experiences difficulties in accessing this type of new learning scenario. It is a fact that not all families have an internet connection or low broadband capacity, so their online learning opportunities are likely to be drastically limited, especially in rural areas (Aguilar, 2020; Alcántara, 2020) <sup>[1, 2]</sup>. Besides, the access to devices which in most cases, telephones and computers have to be shared. Also, the physical spaces of homes are the same. Then, there are no adequate learning spaces. These disparities, as well as differences between types of schools and educational levels, were also reflected in difficulties of different informal educational practices and homework opportunities. It was a challenge for families to deal with the responsibility of the formation of their children in the formation as a person; and, in addition, academic training. Furthermore, there are vulnerable scenarios where learners do not receive enough support from their family, due to some factors, like scarce academic formation and strategies to generate a learning process. Also, the family has to respond to the demands of their acquired commitments, such as study and work, among others. Moreover, the social contexts are

very diverse, families with greater cultural capital showed more facility to support their children's homework, to accompany reading, practice foreign languages or undertake artistic activities. For those parents with enough economic resources but with low cultural capital, the solution was to appeal to external resources to support learning (Martínez-Novillo & Alonso, 2021; Hurtado, 2020) <sup>[31]</sup>.

However, education in some countries has big difficulties not only in terms of access but also in terms of the possibility of granting real opportunities for academic success. "Rural learners and those from marginalized classes have low possibilities of accessing higher education. It would be, then, in front of a scenario of exclusion that would be reinforced by the mandatory implementation of remote education" (García-González & Rodríguez-Zapata, 2021, p. 210) <sup>[17]</sup>. According to Giannini (2020) <sup>[18]</sup> and Flores (2020) <sup>[16]</sup>, regardless of the level of education (both parents and students), the primary danger is that learning inequalities become wider, that marginalization increases and the most disadvantaged students cannot continue their studies. Face-to-face classes are quite important for vulnerable students who have often had fewer opportunities for interaction in environments such as those offered by educational spaces that allow them to strengthen their social skills (Giannini, 2020) <sup>[18]</sup>.

In addition, in the case of inclusive education, there is a need for knowledge about methodologies and tools for the development of tasks (learning-oriented activities) and therapeutic sessions (physiotherapy, psychology, speech therapy) and also to provide specialized support to facilitate learning (Plena inclusión, 2020) <sup>[34]</sup>.

### Teacher training

There is not only a "significant number of low-income students but even some teachers, lack computers or tablets" (Alcántara, 2020, p.78) <sup>[28]</sup>. Moreover, teachers require adequate training that provides them with skills and abilities in this new scenario. This training is necessary to adapt and adjust teachers' methodological strategies that respond to the dynamics of society and its demands. Teachers lack technology training to offer creative and varied education in pandemic, to increase students' motivation and participation in their learning process (Hurtado, 2020; Reimers, 2021) <sup>[8, 35]</sup>. However, there is a resistance and even aversion of certain teaching groups to the use of technology and also a lack of technical support for face-to-face teachers who are not used to handling these interactive technologies. The low formation in technologies showed misunderstandings in the use of synchronous or asynchronous sessions, presentations, teacher orientations and group work of students (Aretio, 2021) <sup>[4]</sup>. In consequence, "the teaching profession was reduced to the technician who chooses materials to work with his students" (Díaz-Barriga, 2020 p.21) <sup>[12]</sup>.

### Evaluation

In terms of evaluation, the problem was that the traditional system continued trying to develop tests and other evaluation activities as they were done in face-to-face learning environments. In this regard, Aretio (2021) <sup>[4]</sup>, argues that there was a lack of a more consolidated model of formative and continuous evaluation which would have reduced the great difficulties of a massive final online evaluation, especially in institutions with large numbers of students. Moreover, it was not possible to refine the different online

evaluation models that answered to criteria of reliable identification, quality, equality, fairness, respect for privacy, data protection and solidity of technological infrastructures. Besides, Aguilar (2020) <sup>[1]</sup> explains that using virtual platforms did not consolidate students' learning because they sometimes lacked of knowledge at the moment of using the platforms properly or when they developed their activities. Instead, the excess of flexibility affected the quality of learning and the development of skills because students did not have the resources or appropriate places to study. Finally, Bas Vilizzio *et al.* (2021) <sup>[7]</sup> expresses that there is a need to carry out a formative assessment process where instruments also allow the promotion of evaluation processes by teachers together with their students, to assess their progress concerning the proposed learning goals.

To sum up, students' performance was notably affected during the pandemic because most of their problems were social, economic and emotional. However, in times of the new normal, it is possible to increase students' motivation in order to boost their performance and recover their confidence at the moment of developing their activities. In the next section, the ARCS model for motivation appears as a means to find possible solutions to the problems mentioned above and improve students' autonomy, confidence and motivation.

### ARCS model for motivation

The ARCS model was created by John M. Keller in 1979, the purpose of this method, according to Keller (1999) <sup>[23]</sup> is that teachers can construct external conditions to stimulate and sustain learners' motivation. Keller took Tolman and Lewin's expectancy-value theory, which is based on the idea that learners feel motivated to learn since there is a purpose or need in the learning process and the expectation of success. Thus, Keller (2000) <sup>[24]</sup> decided to implement a model focusing on motivation which is divided in four steps called Attention (A), Relevance (R), Confidence (C) and Satisfaction (S). one advantage is that ARCS can be implemented in any learning setting, it might be in the classroom, remote, or asynchronous.

#### Attention

It makes reference to students' response to the stimuli given by the teacher. Teachers need to investigate sensorial aspects such as curiosity, interest, boredom, and other related areas.

#### Relevance

The teacher helps students link their previous experiences to the topic being covered in class.

#### Confidence

It highlights the importance of building positive attitudes among students at the moment of developing the task.

#### Satisfaction

It is the students' sense of success when the learning process finishes, and they are able to put those new skills acquired in practice.

Based on the four main aspects of ARCS, Zhang (2015) explains that this model is intended to give a sequence of processes, which starts from calling students' attention, then they have to relate closely to the tasks. Once they have recognized the tasks, they can feel confident to accomplish the activities, finally students can feel satisfied after completing the activities and ready to start a new one. Thus, the ARCS model is an alternative for teachers to tackle those

situations they encounter with unmotivated students who come back to the classroom.

The previous image shows how the ARCS model works, showing a sequence of processes. First, it starts calling students' attention through the materials and tasks given by the teacher. Then, students need to relate closely to the materials in order to feel confident to successfully complete the tasks. Finally, students feel satisfied because they have fulfilled the tasks proposed and are ready for the next one. Thus, according to Maeng and Lee (2015), the ARCS model offers teachers the opportunity to motivate students by guiding them to the completion of the tasks. Thus, it is necessary to explain what kind of activities are suitable to implement in the classroom, those are presented in the next section.

### **Implementing ARCS model in the classroom**

Along with the ARCS model, Keller (2016) [25] explains a ten-step design called Motivational Design, which means the process of arranging procedures and materials to make some changes in motivation. Thus, the first two steps consist of obtaining information about the course and the audience. Then, steps three and four are related to analyzing the audience's motivation and how motivation is fostered in the classroom with the materials available. Next, step five refers to designing motivational goals and how they will be achieved, step six is about checking every motivational goal and creating some strategies. After, step seven and eight are related to selecting, designing and integrating the strategies that best fit in the classroom. Finally, in steps 9 and 10 the materials are developed and implemented in class, then the teacher observes students' reaction to perceive their motivation level, the strategies are rethought and redesigned if necessary.

After having analyzed and designed the materials for the students, some strategies are necessary to start the process of making your students motivated to work. These strategies would take place in each stage of the ARCS model, those strategies are shown below.

### **Attention Stage**

In this stage, it is important to arouse curiosity among students, therefore, teachers must be creative to engage students into learning and feel motivated. Thus; Dirksen (2011) [13] argues that the use of media and presentation software such as PowerPoint or Prezi among others can be appropriate options for teachers, in this manner; they could vary the color and font at the moment of presenting the materials. Besides, if students are exposed to a certain level of confusion, it is possible to have their attention. Another option might be to use real context problems in which students have the chance to participate and give possible solutions to a determined problem.

### **Relevance Stage**

It makes reference to the relationship between the students' needs and the materials given in the class. In this stage, Keller (2016) [25] explains that it is essential that the teacher explains the benefits of the topic covered in class or how that skill learned will be used in the future. Some strategies that teachers might implement inside the classroom might be: using analogies, examples, and stories that students can connect to their own lives. Thus, learners will be motivated when they feel that their efforts are fruitful and rewarded in

the future.

### **Confidence Stage**

Confidence occurs when students feel they are able to do something, this is possible if teachers give constructive feedback. In addition, Dirksen (2011) [13] asserts that teachers should give students opportunities to present evidence of what they have done through essays, tests or worksheets. Also, it is possible to include PowerPoint or Prezi presentations, diagrams, collages, mind maps, infographics, podcasts and videos. In this manner, teachers need to give students opportunities to show what they have learned and praise their progress, thus; they will start becoming more independent and gain confidence.

### **Satisfaction Stage**

Li (2018) explains that once the students have accomplished the tasks assigned, they feel happy because satisfaction encourages students to learn more, acquire new skills such as problem-solving and have opportunities to show their skills in the future. Consequently, Dirksen (2011) [13] argues that one strategy that might be useful in this stage is to create feedback surveys in which students can share their opinions based on the activities they have worked on, thus; teachers can work on the students' responses to modify and improve their lesson plans. Apart from the activities previously mentioned, teachers can also implement the following activities with students.

### **Create a physical Portfolio or E-portfolio**

By creating a students' portfolio, it is possible to keep track of all the progress made by students, a portfolio can be a springboard that allows students to compile, review, and study their work over time because it provides a richer, deeper, and more accurate view of what students have understood throughout a course. Besides, Mohamad, Embi, and Nordin, (2016) assert that another option might be digital portfolios; those may include digital resources such as files, presentations, archives, websites or blogs. One advantage is that digital portfolios might include more dynamic materials than physical portfolios because there are materials such as videos created by students, PowerPoint and Prezi presentations, excel spreadsheets, websites, photos or other digital learning materials.

### **Decision-making process**

Keller (2016) [25] explains that teachers can start the class by making students discuss a general topic. One example might be that students start discussing the materials used for a determined class. Thus, the teacher can divide the class into small groups, then s/he presents the materials to the group, after that, in a piece of paper; students start writing some advantages and disadvantages of the activities. Next, students exchange their papers and discuss their classmate's opinions to get final results. The purpose of this activity is that students are more participative at the moment of making decisions and come to an agreement before selecting the materials given by the teacher. Another example of decision-making process for solving a problem is found in Fazamin *et al.* (2014) [15] work on gamification, these authors explain that ARCS is a model that stimulates and keeps learner motivation using the problem-solving approach. Therefore, using games in the class might help students to engage and solve problems systematically in order to solve a series of problems and keep a record of their progress.

### Progressive Disclosure

This strategy, according to Glewwea *et al.* (2004) <sup>[19]</sup> is about using easels and flip charts in order to reveal a series of items which gradually one at a time as each is discussed. For example, the teacher can use five or six easels which are placed strategically in the classroom ensuring that they are facing backward to the audience. Then, as the teacher explains the topics to be covered in the class s/he turns the easel and the students look at some interesting illustrations, in this manner, it is feasible to keep a high level of curiosity among students. Besides, Schriver (2010) <sup>[36]</sup> argues that using presentation software like PowerPoint might have similar results as those obtained by using easels and flipcharts. Thus, teachers can create a series of slides containing information which is hidden or covered, for example, the teacher shows a diagram, but one part of it is covered. Then, the teacher asks the students to give their predictions, opinions, create a hypothesis, or remember their past experiences. Finally, the teacher reveals the full diagram explaining to the class its contents, instead of presenting a list of items with bullets which shows the whole topic, making it more predictable.

### Create a Felt Gap

Keller (2016) <sup>[25]</sup> argues that creating a gap between what the learners know and what they are expected to know is the first step in the process of learning. However, it is necessary to make the gap “visible” for students in order to raise awareness and what they need to work on that topic or situation.

### Flip the classroom

Bergmann and Sams (2012) <sup>[8]</sup> propose this idea that fosters more autonomous learning, this approach invites students to learn and review the materials at home, then they come to the classroom to discuss, participate in problem solving activities or project activities. This strategy is very useful since it allows students to become more independent and find classroom time more interesting because they feel motivated to put that knowledge in action. Besides, teachers can create more engaging lessons that attract students’ attention.

### Produce a problem-based learning environment

Heuchemer *et al.* (2020) <sup>[21]</sup> express that one goal of problem-based approach is to strengthen students’ responsibility because the learners analyze a problem to identify some aspects they know about and what aspects need to be solved. This aspect improves knowledge acquisition and the students’ social and communicative skills. Besides, students are able to develop important competencies for their professional lives in the future, therefore; teachers have the role of supporting and assisting students in the process of problem-solving.

### Advantages and disadvantages of ARCS model

#### ARCS is student-centered

According to Kurt and Keçik (2017) <sup>[26]</sup>, ARCS model always keeps the student in mind, ensuring that they are engaged throughout the process. Besides, Keller (2016) claims that teachers who implement ARCS need to keep students’ motivation by instilling positive attitudes in them. Thus; it is noticeable that satisfied students feel more motivated, independent and capable to solve problems in real contexts.

### ARCS is cross-curricular

This model can be implemented in different fields of science as it can be seen in the studies carried out by Chang (2018) <sup>[10]</sup> in programming, Montero (2019) <sup>[33]</sup> in physics, Vafa (2020) <sup>[38]</sup> in digital storytelling, among others. Therefore, the ARCS Model is deemed to be useful because it provides useful assistance to educators, tutors, managers, and guarantees more detailed and controlled studies at the moment of evaluating the effectiveness of the teaching-learning process.

### ARCS is flexible

Keller (2016) claims that ARCS model can be adapted to any level, to any academic discipline, business training and professional development, making of this model something that has evolved through the years, as it is seen in Keller’s ARCS-V Model adding the volition value, which can be defined as the continuous efforts made to accomplish a goal. Later on, it is the ARCS+AT Model, Assistance and Tools (AT), which is used in university faculties as a framework to use e-learning and has been cited in matters of motivation. However, there is one drawback that ARCS model for motivation in which educators might pay attention.

### Different levels of motivation and lack of motivation.

According to Keller (2000) <sup>[25]</sup>, there might be some difficulties if there are different levels of motivation in the classroom. Therefore, it is important that teachers completely rethink and plan a motivational approach that tackles those problems. In addition, it is necessary that all students have opportunities to show their strengths and feel included and valued in the group, this can make a difference and improve their motivation.

### Conclusion

It can be said that the academic problems left by the pandemic had a negative effect on students’ motivation since they had to pass through a lot of difficulties such as academic, economic, health and so on. Nevertheless, the ARCS model might be helpful because it offers a thorough set of strategies in which students can feel motivated again inside the classroom because the kind of activities that students develop are problem solving tasks in which they gradually become more independent and assertive at the moment of making decisions. Besides, it makes sure that students show results as the lesson goes by because the teacher is aware of students’ progress and s/he is in charge of motivating them. However, it is important to note that this bibliographical review highlights the importance of the ARCS model for motivation but it has not been implemented yet on a community or group, because the dynamics that occur in a determined group might strongly affect the results obtained.

Therefore, further research should be conducted to see ARCS implications inside and outside the classroom in elementary, secondary and tertiary education in different areas of knowledge. Moreover, future studies could reveal the possible benefits that the ARCS model might have for learners to decrease pre-existing affective factors and the new ones that emerged in the learning context as a result of the pandemic and post-pandemic.

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