

Pre-Motivational Study Based Arcs (Attention, Relevance, Confidence, and Satisfaction) at Biology Education Students at Physiology Animal Lecture

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Abstract: The study motivation will influence the success of student in studying. ARCS model is one of approach which can be used to know the level of students motivation in studying. Four aspect of motivation elements are attention, relevance, confidence, and satisfaction. This research is aimed to know the level of biology education student's motivation at physiology animal lecture. The method used is descriptive quantitative by survey method in this case by using questionnaire of students motivation. This research is holding on April 2016. The subject of the research is 168 students from UIN Alauddin Makassar, UPRI Makassar, and STKIP PI Makassar. The result of the research showed that biology education students' motivation are on the rate 61.44 for attention aspect, 60.26 for relevance aspect, 57.01 for confidence aspect and 61.80 for satisfaction aspect. So, the student's motivation at physiology animal lecture should be improved.

Key words: study motivation, ARCS, physiology animal.

Learning motivation is very important in learning (Wlodkowski, 2008), it is one of the factor which give significant contribution to academic achievement (Yusuf, 2011). Motivation gives influence to the student's feedback and how to apply it in improving memory power and students improvement in learning (Paswcue & Tricomi, 2015), product quality and learning process (Figuera & Duarte, 2011).

The difference of academic success seems real for students which have preference in learning motivation as learning focus and their social need (Kocakoglu, *et al.*, 2010). Motivation acts as supporter, mover in learning, control, perseverance and persistence in students action (Tohidi & jabbari, 2012) students with low motivation incline has a low academic achievement too (Sugondoro, 2015), easy to get hopeless and avoid challenge (Hamjah, *et al.*, 2010). Learning motivation becomes the key aspect of personal improvement and students' professionalism in the higher educational rule (Kozlova & Atamanova, 2013).

Students with their intrinsic motivation have insting to have competence and self-regulation action. This action comes from experience which includes exploration, creativity curiosity, and asking question. Students that can handle the action of their learning action will show the following skills: self-planning, effective time management, designing and arranging procedure to follow investigation, designing procedure to accomplish the assignment, evaluating their self-project through reflection (Llewellyn, 2011).

Motivation can act as learning empowerment if the students in the case of facing problem solving, and only can be solved by helping or case that they have ever faced. Students need to have strong willpower, optimist to think of next time to reach learning objective and answer global challenge. Some educational research shows that there is a significant positive relation

between learning motivation and students' academic achievement (Lim, 2009; Kusboantor, 2014; Hatmalyakin, 2015).

Students learning motivation at animal physiology lecture in 2015/2016 at UIN Alauddin Makassar by using conventional strategy those students got A about 42.85%, B 30.15%, C 26.98%, D and E 0%. While in *STKIP Pembangunan Indonesia Makassar* by using conventional strategy that students got A about 14.83%; B 54.66%; C 19.07%; D 10.59%; and E 0.85%; while at UPRI Makassar by using conventional strategy that students got about A about 12.97%; B 38.89%; C 24.07%; D 14.81% and E 9.26%. This case shows that it is needed to identify and optimize the students' concept through learning motivation.

According to Badura (2001) motivation is an action that is directed to reach the goals, which is initiated and maintained by consequence willing, related to consequence which is anticipated by some actions and self-effectiveness to do that case. From the motivation perspective theory, consequence award is important, because students think of potential results for that they are doing, and keep action for what they believe will resulting valuable consideration. The students that are motivated academically believe that if they are diligent to study, so they will have good academic score. By respecting academic value, we should guess they will study hard, so it will validated their expectation (Schunk, *et al.*, 2012).

Keller (2010) said that ARCS learning model focused on the realization and motivation strategy maintenance used at instructional design. Attention aspect, students' attention supported by curiosity. So, this curiosity need to have stimulation so the students will give attention, and the attention is maintained during teaching and learning process, even longer. According to Margueratt (2007) attention refers to is the curiosity of the students stimulated and is it continued properly time by time. This curiosity can be stimulated by new, strange and different element than previously. If those elements put in learning design, it will stimulate students' curiosity. But, we should keep attention for not doing it much because it will decrease the effectiveness of the model (Keller, 2010).

Relevance aspect shows there is a relation between lecturing material and students need and condition. Motivation will maintained if they consider what they are learning accomplish their personal need, and useful and suitable with the handing value. Learning will hand value. Learning will be relevant for students if the concrete examples related to their experience are given to them (Driscoll, 1994).

Confidence aspect, having competence or ability is the potential to have interaction positively with the environment. This concept related to self-confidence of students that they have something to do the assignment as requirement to get success. Related principle in this case that motivation will improve as the willingness to success is also improved. Motivation resulting perseverance which bring them to success (achievement), and next the success experience will motivate the students to d the next assignment. When someone believes, they are able to do something so she/he will improve the effort to do something else (Pintrich dan Groot, 1990).

Satisfaction aspect, success in achieving the goal will result the satisfaction and students will be motivated to try on and on to reach the same goal. The satisfaction because of reaching the goal is influenced by receptive consequence, whether it comes from outer or inner of the students self. Motivation model which is used to improve the student's satisfaction can be a verbal reinforcement, award, personal attention, feedback and deliberately avoid negative influence (Keller & Suzuki, 2004).

According to the background, so the research problem is how the motivation of Biology education students at animal physiology lectures. The goal of the research is to know how far is the motivation of Biology education students at animal physiology lecture, as an effort to improve learning quality, improve study result and rich learning experience. The result of this

study is used by the researcher to apply learning model or certain learning strategy to improve student's motivation especially at Biology education program.

RESEARCH METHOD

This research is descriptive research by survey method (Cimer, 2012). This research is hold on April 2016 at *Tarbiyah* Faculty, UIN Alauddin Makassar; FKIP, UPRI, Biology Education department, STKIP *Pembangunan Indonesia* (PI) Makassar. Research sample determination is done randomly. The following shows research sample distribution used.

Table.1 Research Sample

No	University	Respondent
1	UIN Alauddin Makassar	• Bio 1-2 = 27 students
2	(UPRI) Makassar	• Bio 3-4 = 34 students
3	STKIP Pembangunan Indonsia (PI) Makassar	• Bio A = 32 students
		• Bio B = 28 students
		• Bio A = 17 students
		• Bio B = 31 students
Respondent		169 students

Research instrument used is learning motivation to animal physiology lecturing, with total question 52 numbers. The statements at the questionnaire consists as positive and negative statements, by respectively include *attention*, *relevance*, *confidence*, and *satisfaction* aspect. Attention aspect consist of 14 questions (7 positive statements and 7 negative statements) relevance aspect consist of 14 questions (7 positive statements and 7 negative statements) *confidence* aspect consist of 10 questions (5 positive statements and 5 negative statements) and *satisfaction* aspect consist of 14 questions (7 positive statements and 7 negative statements).

The questionnaire used likert scale, the assessment for question with positive criteria: score 1 = extremely disagree, score 2 = disagree, score 3 = doubt, score 4 = agree, score 5 = extremely agree. While for the statement with negative criteria: score 1 = extremely agree, score 2 = agree, score 3 = doubt, score 4 = disagree, score 5 = extremely disagree.

Data result research is analyzed quantitatively by using descriptive statistics, to know average score of students learning motivation (M) at single criteria with:

$$(M) = \frac{\text{total score of learning motivation}}{\text{Amount of students} \times \text{amount of item}}$$

Average score is grouped in five category namely: 1,00-1,49 (not good); 1,50-2,49 (less good); 2,50-3,49 (enough good); 3,50-4,49 (good); 4,50 – 5,00 (very good) (Adnan, 2012).

RESEARCH RESULT

The Description of Learning Motivation at Students of Biology Education UIN Alauddin Makassar

Questionnaire result related to learning motivation at the lecturing of UIN Alauddin Makassar at table 2.

Table 2. The Recapitulation of Learning Motivation Questionnaire at Biology Education Study Program UIN Alauddin Makassar

No	Class	Motivation Aspect											
		Attention			Relevance			Confidence			Satisfaction		
		Motivation Average	Average Category	Score	Motivation Average	Average Category	Score	Motivation Average	Average Category	Score	Motivation Average	Average Category	Score
	Bio 1-2	2,60	Good Enough	51,96	2,32	Good Enough	46,46	2,24	Less good	44,89	2,55	Good Enough	50,95
	Bio 3-4	2,86	Good Enough	57,23	2,94	Good Enough	58,87	2,54	Good Enough	50,82	3,00	Good Enough	60,00
		2,73	Good Enough	54,59	2,63	Good Enough	52,67	2,39	Less good	47,86	2,78	Good Enough	55,48

The Description of Learning Motivation at Students of Biology Education UPRI Makassar

Questionnaire result related to learning motivation at the lecturing of UPRI Makassar at Table 3.

Table 3 The Recapitulation of Learning Motivation Questionnaire at Biology Education Study Program Universitas Pejuang Republik Indonesia

No	Class	Motivation Aspect											
		Attention			Relevance			Confidence			Satisfaction		
		Motivation Average	Average Category	Score	Motivation Average	Average Category	Score	Motivation Average	Average Category	Score	Motivation Average	Average Category	Score
	A	2,54	Good Enough	50,89	2,48	Less good	49,69	2,38	Less good	47,69	2,50	Good Enough	50,00
	B	2,68	Good Enough	53,57	2,65	Good Enough	52,96	2,66	Good Enough	53,14	2,48	Less good	49,69
		2,61	Good Enough	52,23	2,57	Good Enough	51,33	2,52	Good Enough	50,42	2,49	Less good	49,85

The Description of Learning Motivation at Students of Biology Education STKIP PI Makassar

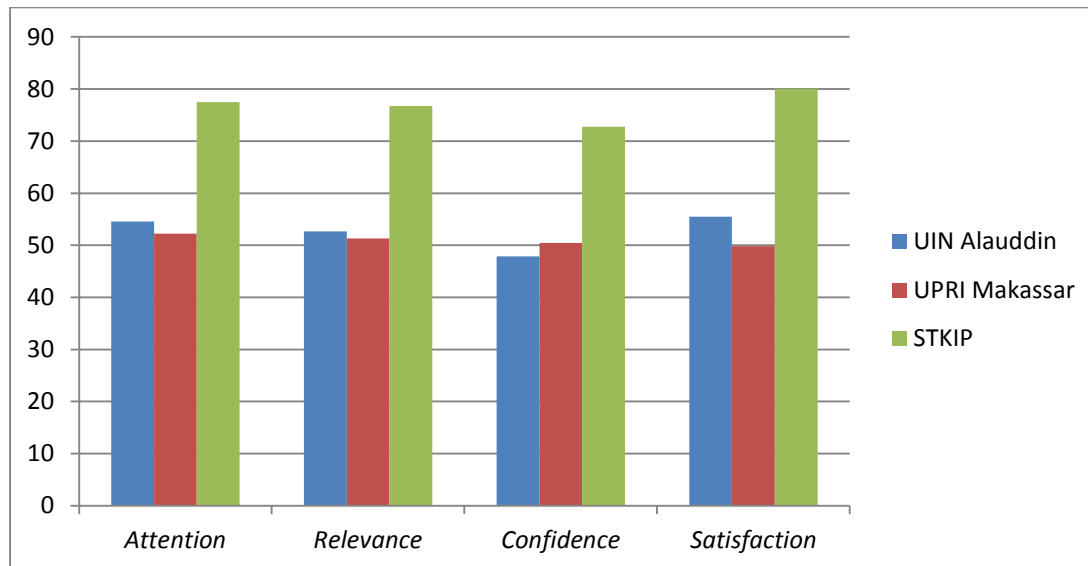
Questionnaire result related to learning motivation at the lecturing of STKIP PI Makassar at Table 4.

Table 4 the Recapitulation of Learning Motivation Questionnaire at Biology Education Study Program STKIP PI Makassar

No	Class	Motivation Aspect											
		Attention			Relevance			Confidence			Satisfaction		
		Motivation Average	Average Category	Score	Motivation Average	Average Category	Score	Motivation Average	Average Category	Score	Motivation Average	Average Category	Score
	A	3,90	Good	77,98	3,85	Good	76,97	3,57	Good	71,41	4,02	Good	80,34

B	3,85	Good	77,00	3,83	Good	76,59	3,70	Good	74,06	3,99	Good	79,82
	3,87	Good	77,49	3,84	Good	76,78	3,63	Good	72,73	4,01	Good	80,08

The recapitulation of learning motivation score at *Attention*, *Relevance*, *Confidence*, and *Satisfaction* aspects at Biology education students at animal physiology lecture shows at Picture 1.



Picture 1 The Graph of Learning Motivation Aspect Score *Attention*, *Relevance*, *Confidence*, and *Satisfaction* at Biology Education Students at Animal Physiology Lecture.

DISCUSSION

Motivation to study is inclination of students to consider academic activity valuable, useful and try to get the advantage of academic. The motivation to study can be interpreted as general trait or situation-specific state (Adnan, 2012). The result of data analysis that students learning motivation at attention, relevance, and satisfaction aspect of UIN Alauddin Makassar students are on the good enough category. But, this relevance aspect should be improved, especially at the relation between material and students need.

Whole for confidence is aspect at the less good category. If it is reviewed, there are some factors which causes the less of confidence aspect, they are: (1) the opinion that animal physiology material is difficult to understand than other lectures; (2) the opinion that material presented in learning consist of much information so it become difficult to get the important ideas and remembering them, (3) the organization of material presented in learning and books seems complicated and not systematic.

Having competence and competence is the potency to have interaction positively with the environment. This concept related to the self-confidence of students that they have something to do the assignment as success requirement. The principle here is that motivation will improve in line with the improvement of the willingness to success. This case is often influenced by success experience last time. So, there is a spiral relation between success experience and motivation, and the next success experience will motivate students to do the next assignment. When someone believes, they are able to do something so she/he will improve the effort to do something else (Byman, *et al.*, 2012).

Students learning motivation UPRI Makassar at *attention, relevance, confidence* aspect is in the good enough categories, while less good category for satisfaction aspect. Some factors which causes the students having less motivation: the students are less spirit to aspect is in the good enough category, while less good category for satisfaction aspect. Some factors which cause the students having less motivation: (1) the students are less spirit to learn the material continually, (2) learning strategy used is still dictated and speech, (3) learning resource and environment are not effective.

Educator should give interpersonal support and give the chance in creating autonomy climate for students in actualizing themselves to the point which give more energy in learning process (Reeve & Yu-Lan, 2014). According to Harmawati (2010), the success of lecturer in teaching learning process must be supported by their personal, such as: sympathetic and interesting, lithe, wise and simple in action. The lecturer must be sympathetic and interesting in explaining the material for the sake of students groove. Lecturer and educator as motivator should improve educational interaction pattern so it can grow and improve learning motivation so the learning achievement can be reached optimally. Educator or lecturer is the one that has the main role in learning process. A lecturer should able to improve some innovative learning model because the students learning success is also influenced by the lecturer strategy to manage the learning process (Kusbiantoro, 2014).

Learning motivation of STKIP PI Makassar at attention, relevance, confidence, and satisfaction aspect are on the good enough category. Motivation in learning activity is the power supporter for students in using their potential to realize learning goal. Although attention, relevance, confidence, satisfaction aspect are on the good enough category, but questioning activity of students is still low. The braveness in giving questions or statement is believe that they are able to do certain assignment or can be valued as believe to do something in certain situation successfully. In class observation, it can be identified that the level of self-confidence to give the questions still dominated by students which have superior academic level. So, we need a strategy to improve self-confidence of students for high, middle and low students.

The low motivation is the problem in learning because it gives the influence to the achievement of learning result (Aunurrahman, 2009). Brophy (2004) states that there are five factors that influence learning motivation, educators' expectation, direct instruction, suitable feedback, reinforcement, reward and punishment. In motivation analyzing, it is important to identify motivation difference and realize that the problems may be different in one subgroup and others. This is also important to identify some positive factors. A motivation system must be able to solve the motivation problem, and have the ability to maintain the level of motivation expected. Output from the analysis shows motivation differences must be closed and satisfying motivation must be maintained (Keller, 2000).

The interview result and observation done by the researcher at Universitas Islam Negeri (UIN) Alauddin Makassar; Universitas Perjuangan Republik Indonesia (UPRI); Biology Education department; STKIP Pembangunan Indonesia (PI) Makassar, the information wholly as the following: (1) the students attention to join the learning process is still low; (2) students are not able to relate the learning material with the case or process related to daily life, yet; (3) only some students that have the braveness and confidence to show their opinion in class discussion; (4) only some students realize the importance of the material; (5) the questions only come from high level students, while others are still passive.

Humanistic perspective stresses the student's capacity in developing personality, the freedom to choose their fate. Maslow view related to the humanistic perspective, self-actualization is the highest need and difficult so they have to be given special attention because self-actualization is the motivation to develop self-potential wholly as human. Most of people are stop to be adult after they develop high level pride and never arrive to self-actualization.

But, some people have different opinion with Maslow that for some students, cognitive need is more fundamental than pride need (Santrock, 2007).

Keller compose five strategies to stimulate and maintain the students interest and curiosity: (1) the use of new, conflict or paradox case or event; (2) using anecdote and other ware, that develop emotional unsure that is related to intellectual or procedural thing; (3) giving chance to study more about what they have known and interests in it, but they also give them moderate different dosage, (4) using analogy, (5) guide students in generation process of question and inquiry (Brophy, 2004).

Uno (2007) states that there are some motivation techniques which can be used in learning, they are (1) arising curiosity; (2) using known material by students as example in learning; (3) seeing students to use the cases that they have learned previously; (4) explain learning goal to be achieved; (5) reporting the work result achieved; (6) making competing nuance healthy among students; (7) giving the chance to students to show their skill to public.

The implementation of motivation assessment is also urgent to be held because motivation gives the impact to learning achievement. Learning motivation contributes significantly and positive as 19% to learning result. Motivation can influence the one learning result because motivation can direct, and support human to the action direction, include learning action, so that learning achievement can be achieved (Mudjiono & Dimyati, 2009). The one who have high motivation will expedite the learning process so they can achieve maximal learning result and otherwise. In some educational research were shown that there is significant positive relation between learning motivation and academic achievement of students (Lim, 2009; Kusboantor, 2014; Hatmalyakin, 2015).

Conclusion, Suggestion and Thank You-Note

According to research result and data analysis so the conclusion in this research is the students learning motivation of Biology education students in Makassar about 61.44 for attention aspect, 60.26 for relevance aspect, 57.01 for confidence aspect and 61.80 at satisfaction aspect. So, the students learning motivation at animal lecture should be improved.

This research result can be a guide for the researchers their selves and the next researcher to improve learning motivation through the refinement of learning process and learning strategy actively and constructively. Thanks to the head of department, the head of study program and all lecturers at Biology education program at coordinator of study program and all the lecturers at Biology study program that exist at Universitas Islam Negeri (UIN) Alauddin Makassar; Universitas Pejuang Republik Indonesia (UPRI); STKIP Pembangunan Indonesia (PI) Makassar for the participation as respondents and help in data collection.

References

- Adnan, F. Marliyah, S. Studi Motivasi Siswa SMP dan Sederajat di Kota Makassar pada Mata Pelajaran IPA Biologi. *Jurnal Bionature*, 13(2): 103-107.
- Aunurrahman. 2009. *Belajar dan Pembelajaran*. Bandung : Alfabeta.
- Bandura, A. 2001. Socisl Cognitive Theory: An Agentic Perspective. *Annual Review of Psychology*, 52, pp 1-26.
- Brophy, J. 2004. *Motivating Students to Learn*. New Jersey: Lawrence Erlbaum Associates
- Byman, R., Lavonen, J., Juuti, K., Meisalo, V. 2012. Motivational Orientations in Physics Learning: A Self-Determination Theory Approach. *Baltic Science Education*, 11(4), pp 379-392.
- Djamarah & Zain. 2002. *Strategi Belajar Mengajar*. Jakarta: Rineka Cipta.

- Driscoll, B.J. 1994. *Psychology of Learning for Instruction*. Needham Heights, MA: Allyn & Bacon.
- Figuera, A.I., Durate, M. 2011. Increasing the Quality of Learning through Changes in Motivation. *Procedia Social and Behavioral Science*, 29: 1373 – 1379.
- Hamjah, S.H., Rasit, R.M., Rozali, E.A. 2010. Methods of Increasing Learning Motivation Among Students. *Procedia Social and Behavioral Sciences*, 18: 138–147.
- Hatmalyakin, 2015. *Hubungan Motivasi dalam Memilih Program Studi keperawatan dengan Prestasi belajar pada mahasiswa Keperawatan Angkatan 2014 Fakultas Kedokteran Universitas Tanjungpura Pontianak*. Pontianak: Universitas Tanjungpura.
- Keller, J.M. 2000. *How to Integrate Learner Motivation Planning into Lesson Planning: The ARCS Model Approach*. Paper presented at VII Semanario, Santiago, Cuba.
- Keller, J.M. & Suzuki, K. 2004. *Learner Motivation and E-Learning Design: a Multinationally Validated Process*. *Journal of Educational Media*, 29(3), pp 229-239.
- Keller, J.M. 2010. *Motivational Design for Learning and Performances: The ARCS Model Approach*. USA: Instructional Systems Program. Florida State University.
- Kocakoglu, M., Turkmen, L., Solak, K. 2010. Motivational Styles in Problem-Based Learning. *Procedia Social and Behavioral Sciences*, 2: 615–619.
- Kozlova, N.V., Atamanova, I.V. 2013. The Development of Undergraduates Motivation for Research Work. *Procedia Social and Behavioral Sciences*, 93: 498 – 502.
- Kusbiantoro, D. 2014. Hubungan Motivasi Belajar dengan Prestasi Belajar Mahasiswa Semester 1 Program Studi Ilmu keperawatan STIKES Muhammadiyah Lamongan Tahun Akademik 2013/2014. *Surya*, 1(17).
- Lim, D.H., & Morris, M.L. 2009. Learner and Instructional Factors Influencing Learning Outcomes within a Blended Learning Environment. *Educational Technology & Society*, 12(4), pp 282–293.
- Llewellyn, D. 2011. *Differentiated Science Inquiry*. California: Corwin a Sage Company.
- Paque, D.S., Tricomi, E. 2015. Effects of Intrinsic Motivation on Feedback Processing During Learning. *NeuroImage, Procedia Social and Behavioral Sciences*, 119: 175–186.
- Pintrich, P.R., & De-Groot, E.V. 1990. Motivational and Self-Regulated Learning Components of Classroom Academic Performance. *Journal of Educational Psychology*, 82(1), pp 33–40.
- Purwanto, M. 2002. *Psikologi Pendidikan*. Bandung: Remaja Rosdakarya.
- Reeve, J. and Yu-Lan, S. 2014. *The Oxford Handbook of Work Engagement, Motivation, and Self-Determination Theory*, Edited by Marylene Gagne. New York: Oxford University Press.
- Santrock, J.W. 2007. *Psikologi Pendidikan (Terjemahan) Edisi Kedua*. Jakarta: Kencana Prenada Media Group.
- Schunk, D.H., Pintrich, P.R., Meece, J.L. 2012. *Motivasi dalam Pendidikan: Teori, Penelitian dan Aplikasi Edisi Ketiga*. New Jersey: Pearson Education.
- Slameto. 2003. *Belajar dan Faktor-Faktor yang Mempengaruhinya*. Jakarta: PT. Rineka Cipta.
- Soeharto. 2003. *Pendekatan dan Teknik dalam Proses Belajar mengajar*. Bandung: Tarsito.
- Soekamto dan Winataputra. 1997. *Teori Belajar dan Model-Model Pembelajaran*. Jakarta: Ditjen Dikti Depdikbud.
- Syafensi, I. 2013. Kontribusi Motivasi Belajar terhadap Hasil Belajar Mata Pelajaran Gambar Bangunan Siswa SMK Negeri Solok. *Jurnal CIVED, (online)*, Vol.1, No.1, (<http://ejournal.unp.ac.id>, Diakses 2 April 2016).
- Tohidi, H. dan Jabbari, M.M. 2012. The Effects of Motivation in Education. *Procedia Social and Behavioral Sciences*, 31: 820 – 824.
- Uno, H.B. 2007. *Teori Motivasi dan Pengukurannya*. Jakarta: Bumi Aksara.



- Winkel, W.S. 2004. *Psikologi Pengajaran*. Jakarta: PT.Grasindo.
- Wlodkowski, R.J. 1985. *Enhancing Adult Motivation to Learn*, San Francisco: Jossey-Bass.
- Yusuf, M. The Impact of Self-Efficacy, Achievement Motivation, and Self-regulated Learning Strategies on Students Academic Achievement. *Procedia Social and Behavioral Sciences*, 15: 2623–2626.

