

## INNOVATIONS

### **A three-way analysis of variance on the locus of control of college lecturers in Malaysia**

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#### **ABSTRACT**

The purpose of the study was to examine the locus of control of college lecturers in Malaysia in relation to age, gender and educational levels using the Rotter Scale. A review of literature indicated that research on these attributes is still lacking among Malaysian educators. The sample consisted of 60 lecturers from five colleges who were asked to complete an online questionnaire. A three-way analysis of variance (Age x Gender x Educational Level) was conducted and results showed significant age and educational differences in their internal locus of control; however, no significant gender differences were found. Findings of this study highlight the necessity of informing college lecturers on ways to improve their internal locus of control. Since this psychosocial concept is relatively new among Malaysian college lecturers, it is suggested that this notion be incorporated in their trainings and professional development.

**KEYWORDS:** 1. Locus of control, 2. Malaysian college lecturers

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#### **INTRODUCTION**

Locus of control is an important psychosocial variable that influences the attitudes and effectiveness of individuals as professionals. First coined by Rotter (1966), it refers to the degree to which a person feels a sense of agency regarding his or her life. People with an internal locus of control tend to believe things that happen to them are caused by their own abilities, actions or mistakes, while people with an external locus of control tend to believe that chance, environmental factors or other external factors are responsible for the events that occur in their lives. Locus of control has gained widespread attention in the field of education since its conceptualisation. Previous studies revealed that teachers' internal locus of control was associated with teaching effectiveness, job satisfaction, academic achievement and on-task

behaviour (Bulus, 2011; Ganji, Vardanyan, & Navabinezhad, 2013; Jeloudar & Lotfi-Goodarzi, 2012; Mahajan & Kaur, 2012).

Past research revealed that teachers with internal locus of control tended to experience greater job satisfaction and less job exhaustion than those with external locus of control (Joo, Lim, & Kim, 2013; Sunbul, 2003). Bedel (2008) who examined the locus of control and attitudes toward the profession of preschool teachers found that teachers with internal locus of control tended to have more positive attitudes toward teaching. Other studies revealed that teachers with internal locus of control tended to be more satisfied with their job environment, personal accomplishments, vigour, dedication, and well-being on and off the job (Betoret, 2013; Kiral, 2019).

## **REVIEW OF LITERATURE**

Basak and Ghosh (2011) examined the relationships among locus of control, school environment and job satisfaction of 160 higher secondary school teachers. Findings revealed that female teachers had higher mean scores on locus of control and school environment. Locus of control was significantly related to both school environment and job satisfaction. Teachers with an internal locus of control experienced higher job satisfaction than those with an external orientation. They tended to believe that events were influenced by their own behaviour and action, were more willing to give and receive feedback, and were more capable of forming favourable relationships with others to achieve a common purpose.

Mahajan and Kaur (2012) examined the relationship between the locus of control and job satisfaction of 150 college teachers. Findings indicated that the locus of control and job satisfaction of both male and female teachers were significantly correlated. Further, the locus of control of male teachers with high job satisfaction differed significantly from those with low job satisfaction. Their locus of control also differed significantly from that of female teachers with low job satisfaction. Like male teachers, the locus of control of female teachers with high job satisfaction also differed significantly from that of female teachers with low job satisfaction.

Other researchers found that teachers' locus of control was associated with several personality variables. Khan, Saleem and Shahid (2012) who examined the buffering role of locus of control in college teachers' stress found that teachers with an internal locus of control tended to experience lower stress levels and had better coping and mediating skills than those with an external locus of control. Yesilyurt (2014) who examined the locus of control, tendencies towards academic dishonesty and test anxiety of 256 teacher candidates found that external locus of control was significantly related to academic dishonesty and test anxiety.

Ganji, Vardanyan and Navabinezhad (2013) examined the relationship between job satisfaction and locus of control of 120 teachers. Findings revealed that the job satisfaction of both male and female teachers was significantly related to their locus of control. Male teachers with high job satisfaction differed significantly from male teachers with low job satisfaction, with the former group possessing an internal locus of control. Similarly, female teachers with high job satisfaction differed significantly from female teachers with low job satisfaction, with the former group possessing an internal locus of control.

Akkaya and Akyol (2016) examined the relationship between the locus of control and job satisfaction of 835 teachers. Findings indicated that teachers generally tended to have a moderate internal locus of control, perceiving events involving them were within their control and initiative. While believing that significant others could have an impact on events, the teachers themselves

were able to draw the borders of such impact. Further, they perceived events happening to them had nothing to do with luck and faith (external locus of control variables). Even if there was such a thing as luck, they would still make the most logical decisions among the opportunities presented to them. Internal locus of control was also significantly related to job satisfaction, whereby teachers perceived that they were able to decide for themselves if they could carry out the activities related to their interests.

Bitsadze and Japaridze (2016) examined the relationship between locus of control and burnout of 373 teachers from different schools. Findings revealed that locus of control had a significant correlation with emotional exhaustion and the decrease of personal accomplishments. Teachers with an internal locus of control tended to experience the lowest level of emotional exhaustion and were also less likely to suffer from reduction of personal accomplishments than teachers with an external locus of control. On the other hand, Senler (2016) who examined the relationships among the locus of control, self-efficacy, attitude towards teaching science and teaching anxiety of 356 pre-service elementary science teachers found that locus of control was positively related to attitude towards teaching science, but negatively related to teaching anxiety.

Ahluwalia and Preet (2017) examined the relationships among the locus of control, work motivation and organisational commitment of 460 university teachers. Findings showed significant differences in locus of control in relation to years of job experience; teachers with more years of job experience tended to have an external locus of control. Further, they tended to have higher organisational commitment than those with less experience. However, they felt less control over their lives and career, were more risk averse and preferred to tread on a familiar path.

Tas and Iskender (2018) examined the locus of control, meaning in life, satisfaction with life and self-concepts of 363 teachers. Findings revealed that teachers with an internal locus of control tended to find their lives more meaningful and in their own hands. Further, significant gender differences were found in their locus of control whereby male teachers tended to have greater internal locus of control than their female peers. On the other hand, Kirmizi and Saricoban (2018) who examined the locus of control and self-efficacy of 108 prospective teachers found that they had internal locus of control, reflecting that they were able to protect their personal interests and get what they wanted by relying on their own abilities. Additionally, they believed that their lives were determined by their own actions, believing that they could control what would happen in their lives to a great extent.

Akca, Ulutas and Yabanci (2018) examined the locus of control, self-efficacy and intercultural sensitivities of 237 teachers. Findings revealed a significant relationship between locus of control and self-efficacy; teachers with more internal locus of control tended to have higher self-efficacy. Further, locus of control was positively correlated with intercultural sensitivity, whereby teachers with internal locus of control tended to have higher intercultural sensitivity. Locus of control could also be predicted by self-efficacy and intercultural sensitivity, indicating that the two variables could influence its development.

Malarkodi and Magdalin (2019) examined the relationship between the locus of control and self-efficacy among 35 special educators in Chennai, India. A one-way analysis of variance was conducted to determine if significant differences existed between self-efficacy and locus of control in relations to age, income and years of experience. Findings only revealed a significant relationship between the locus of control and self-efficacy of special educators. In addition, Kiral

(2019) who explored the relationship between the locus of control with eight different variables of 335 high school teachers found that teachers mostly exhibited internal locus of control. Significant differences in locus of control were found in relation to age, seniority, teaching specialty and socioeconomic status of the school. Findings implied the importance of enhancing teachers' internal locus of control by providing training.

Manjunath (2020) examined the relationships among job satisfaction, locus of control, occupational stress and job involvement of 400 college teachers. Findings showed that the job satisfaction of male teachers was significantly related to their locus of control; it tended to increase with an internal locus of control. Achhnani and Amareliya (2020) examined the locus of control of 103 school teachers in Rajkot, India. Findings revealed a significant correlation between the external locus of control and age of the teachers. Significant differences were also found in the teachers' external locus of control with respect to educational qualifications.

### **GAP AND SIGNIFICANCE OF THE STUDY**

Many of the studies reviewed above have been conducted to examine the influence of locus of control using a variety of instruments and samples through the years, particularly in the United States of America (USA) and Europe. Outside the USA, most research examining teachers' locus of control was conducted in Turkey and Iran. The review of literature indicated that research on this attribute is still lacking in Malaysia. However, its robustness in other multicultural contexts such as Malaysia, should be investigated. The current study aims to contribute to this gap by providing empirical research and a balanced view of Malaysian lecturers' locus of control in a social as well as intellectual context, besides placing them into a broader theoretical framework.

Additionally, this study would underpin the professional learning of knowledge, skills and understanding within the context of Malaysian tertiary institutions, providing lecturers with cogent information needed to clarify priorities when introducing change to the curriculum, pedagogy or assessment. Since little research was available on the locus of control of Malaysian educators, this study would provide greater insight into their psychosocial characteristics that could influence their attitudes toward teaching and research. It can also augment lecturers' understanding of their own psychological and professional attributes, enabling them to teach and guide students more efficaciously. Moreover, the findings of this study can help them develop the agency and voice within their own educational institution of higher learning, and more widely, within the community. Finally, fresh information can be generated on whether there is a need to design programs to enhance the locus of control of Malaysian lecturers. In light of the findings, implications can also be drawn on how Malaysian lecturers could tap into their psychosocial attributes to better dedicate themselves to the interests of various categories of stakeholders.

### **METHODOLOGY**

Based on the perceived gap identified earlier, this study intends to examine the locus of control of college lecturers in Malaysia in relation to age, gender and educational levels. Three research questions were formulated for the purposes of the study:

1. Were there any significant age differences in lecturers' locus of control?
2. Were there any significant gender differences in lecturers' locus of control?
3. Were there any significant differences in lecturers' locus of control in relation to educational level?

The participants' locus of control was measured by the Rotter Locus of Control Scale (Rotter, 1966). Lange and Tiggemann (1981) who examined the dimensionality and reliability of this scale with Australian students found that its test-retest reliability was .61, suggesting that the scale itself, with its two-factor structure, is stable over a considerable period of time. Marsh and Richards (1986) who conducted multi-trait and multi-method analyses on the Rotter Scale found that observer responses were significantly correlated with self-responses which provided additional support for the construct validity of responses to the scale. The Rotter Scale comprises 29 pairs of statements; for each pair, subjects must choose the one that they believe to be the most accurate, not the one they wish was most true. There were no right or wrong answers and it took 15 minutes to complete. Responses were scored in a positive direction (positive = 1; negative = 0; full score = 29).

The Rotter Scale was completed by 60 teachers from five private colleges, which were randomly selected from 15 private colleges in Sabah and Sarawak, Malaysia. Drawn from communities that were culturally, linguistically and ethnically diverse, the participants were recruited with the cooperation of coordinators who agreed to share the survey link with their lecturers. Since this study had three independent variables (age, gender and educational level), 60 subjects were deemed as sufficient to yield reliable and valid results (Roscoe, 1975). The effect size of this sample at 0.5 level would be a moderate 0.78. Table 1 provides the demographic information of the sample:

**Table 1. Demographic information of subjects**

| <b>Age (years)</b> | <b>Frequency</b> | <b>Percentage</b> | <b>Education</b>   | <b>Frequency</b> | <b>Percentage</b> |
|--------------------|------------------|-------------------|--------------------|------------------|-------------------|
| 20-30              | 10               | 16.67             | Bachelor's         | 22               | 36.67             |
| 31-35              | 18               | 30                | Master's           | 25               | 41.67             |
| 36-40              | 8                | 13.33             | PhD                | 10               | 16.67             |
| 41-45              | 8                | 13.33             | Diploma            | 3                | 5                 |
| 45-50              | 7                | 11.67             |                    |                  |                   |
| > 50               | 9                | 15                |                    |                  |                   |
| <i>Total</i>       | 60               | 100               | <i>Total</i>       | 60               | 100               |
|                    |                  |                   |                    |                  |                   |
| <b>Gender</b>      | <b>Frequency</b> | <b>Percentage</b> | <b>Job (years)</b> | <b>Frequency</b> | <b>Percentage</b> |
| Male               | 17               | 28.33             | 1-5                | 14               | 23.33             |
| Female             | 43               | 71.67             | 6-10               | 14               | 23.33             |
| <i>Total</i>       | 60               | 100               | 11-15              | 11               | 18.33             |
|                    |                  |                   | 16-20              | 6                | 10                |
|                    |                  |                   | > 20               | 15               | 25                |
|                    |                  |                   | <i>Total</i>       | 60               | 100               |

As shown in the table, the only demographic information required was age, gender, educational levels and job experience of the participants; anonymity was strictly maintained. Responses were computer-scored and data were then analysed using SPSS 26.0. A three-way analysis of variance (Age x Gender x Educational Level) was subsequently used to determine if any significant age, gender and educational differences existed in the locus of control of the college lecturers. The fixed variables were age, gender and educational level, while the dependent variable was the overall mean scores of the lecturers' locus of control.

**RESULTS**

The three-way analysis of variance on locus of control revealed significant age differences in the college lecturers' locus of control,  $F(5, 54) = 5.01, p < .005$ . Significant educational differences were also found,  $F(3,56) = 4.01, p < .05$ . No significant gender differences were found (See Table 2).

**Table 2. Tests of between-subjects effects**

| Source    | Type III SS | df | Mean squares | F     | Sig    |
|-----------|-------------|----|--------------|-------|--------|
| Age       | 219.447     | 5  | 43.889       | 5.008 | .004** |
| Gender    | 17.030      | 1  | 17.030       | 1.943 | .179   |
| Education | 129.197     | 3  | 43.66        | 4.914 | .011*  |

\* $p < .05$ ; \*\* $p < .005$

**DISCUSSION**

**Significant age differences**

The present study revealed significant age differences in the locus of control of Malaysian college lecturers. This finding was supported by previous research. Hans, Mubeen and Al Ghabshi (2014) found significant age differences in teachers' internal locus of control; teachers in the 30-39 age group scored higher than those above 25, while teachers over 60 scored higher than those in the 40-59 group, inferring that individual sense of control tended to increase with age.

Bedel (2015) found that male pre-service early childhood teachers at the senior level had higher mean scores in their internal locus of control than their junior peers. Kourmoussi, Xythali and Koutras (2015) found significant age differences for all the locus of control subscales; educators under 40 obtained lower scores on the internal locus of control (internality) subscale than those between 41 to 49 years old and those 50 years old and above. Further, mean scores on powerful others and external locus of control (chance / externality) subscales decreased as the educators' age increased. Finally, Kiral (2019) found that teachers' locus of control showed significant differences according to age and seniority; teachers aged 30 and below obtained lower scores in chance / external locus of control than those in the 31-45 age group.

**Significant educational differences**

Significant educational differences in lecturers' locus of control were found in the current study. This is consistent with the findings of Devin, Ghahramanlou, Fooladian and Zohoorian (2012) that teachers' educational background had positively significant effect on their locus of control. More educated teachers tended to be more internally oriented than those with lower qualifications. Similarly, Achhnani and Amareliya (2020) found that significant educational differences in teachers' internal locus of control; teachers with higher educational qualifications obtained a higher mean score in internal locus of control. Finally, Jeloudar and Lotfi-Goodarzi (2021) found that teachers with Master's degrees obtained a significantly higher mean score in their internal locus of control than those holding those with Bachelor's degrees.

**Non-significant gender differences**

Non-significant gender differences in the lecturers' locus of control were found in the current study. This finding was supported by previous research. Bedel (2015) who assessed the locus of control of 110 pre-service early childhood teachers using the Rotter Scale found no significant gender differences. Likewise, Kiral (2019) who examined the locus of control of 335 high school

teachers using the Multidimensional Locus of Control Scale found that teachers mostly exhibited internal locus of control, but no significant gender differences were found.

### **IMPLICATIONS AND RECOMMENDATIONS**

Findings of the present study indicated that significant age and educational differences existed in Malaysian college lecturers' locus of control. Results of this study underlie the necessity of informing college lecturers on the importance of internal locus of control. Since this concept is relatively new among Malaysian college lecturers, it can be incorporated in their training and professional development. College lecturers can assess their own locus of control using the Rotter Scale that is available in the Internet for free. Those who need to improve their internal locus of control can adopt several actionable tactics mentioned in the following paragraphs.

To possess more internal locus of control, individuals need to be aware that they always have the choice to change their situation (Batra, 2021; Scott, 2020). College lecturers will realise that by merely changing how they perceive things can be liberating and empowering. While they may not be able to simply choose to have their problems disappear, college lecturers can choose pragmatic ways to cope with challenges. Acknowledging that they always have a choice can motivate them to change their situation, or embrace it more willingly if it really is the best option. Frankham (2019) emphasised that individuals dwelling on things beyond their control tend to have higher stress levels and an external locus of control. Rather than attempting to control their environment, situation, or even other people, college lecturers may focus on what they can control – their thoughts, feelings and behaviour. They cannot change the demeanour or attitudes of others, but they can change their own, which in turn, may inspire others to change.

Further, individuals can make a list of all possible courses of action when they encounter any problem (Scott, 2020). College lecturers can brainstorm and write things down without needing to evaluate them first. This list is helpful in reminding them of their choices and preventing them from feeling trapped. It also shows them what they can control, even when many things are already fixed. They can also get more practical ideas from friends or colleagues – ideas that they may not have initially considered owing to an anxious mindset. After making the list, they can evaluate each item and select the best course of action, while keeping the others as alternative options.

According to Hilgers (n. d.), to increase internal locus of control, individuals may watch their language and self-talk. College lecturers need to avoid speaking in absolute, but strive to make their self-talk more positive. Using language that opens up and acknowledges alternative outcomes strengthens their sense of agency in life. Since their own attitudes tend to affect their stress level more than they may realize, college lecturers can become more aware of mental and personality factors that influence their stress level to introduce changes. To eliminate negative self-talk, they can apply the principles of cognitive behaviour therapy to modify the ways in which they interpret or evaluate situations, thoughts and feelings.

Hilgers (n. d.) added that individuals should be accountable, and take responsibility for themselves regardless of the external factors that are beyond their control. College lecturers can find strength through vulnerability by fostering authenticity in their relationships; for instance, they can reiterate what they can be doing differently to live a better life with those closest to them. By taking responsibility for everything in their life, they will find that owning responsibility for outcomes often motivates them to think critically about what they could do to get a different outcome.

Batra (2021) maintained that introspection is a good tool to enhance one's internality. College lecturers can be encouraged to take some time out and understand themselves better. Spending time with themselves will help them focus on what they really want and gain insight of the choices available to them. Further, introspection can assist them in blocking influences from their external networks and the outside world, allowing them to listen to their own thinking. Besides thinking about things in solitude, they can spend time alone by practicing mindfulness, reading or journal writing.

Finally, this study might be considered as the initial step in exploring the locus of control of Malaysian college lecturers. Future research can examine it in relation to self-efficacy, job satisfaction and other intellectual and affective characteristics of college lecturers. To enhance generalisability of findings, further research on college lecturers' locus of control can include larger, random samples drawn from various contexts, taking into account different educational levels, teaching experience and personality attributes.

## REFERENCES

1. Achhnani, B., & Amareliya, A. (2020). Locus of control of school teachers. *Journal of Management Research and Analysis*, 7(1), 40-45.
2. Ahluwalia, A., & Preet, K. (2016). Locus of control among university teachers: An empirical study. *International Journal of Engineering Technology Science and Research*, 3(1), 75-80.
3. Akca, F., Ulutas, E., & Yabancı, C. (2018). Investigation of teachers' self-efficacy beliefs, locus of control and intercultural sensitivities from the perspective of individual differences. *Journal of Education and Learning*, 7(3), 219-232.
4. Akkaya, R., & Akyol, B. (2016). The relationship between teachers' locus of control and job satisfaction: A mixed method study. *International Online Journal of Educational Sciences*, 8(3), 71-82.
5. Basak, R., & Ghosh, A. (2011). School environment and locus of control in relation to job satisfaction among school teachers. *Social and Behavioural Sciences*, 29, 1199-1208.
6. Batra, K. R. (2021). Internal locus of control: How to build and make the most of it. [online] Available at: [www.infinumgrowth.com](http://www.infinumgrowth.com)
7. Bedel, E. F. (2015). Assessing locus of control by gender and learning styles in pre-service early childhood education students. *International Journal of Education and Research*, 3(1), 53-62.
8. Beretvas, S. N., Suizzo, M. N., Durham, J. A., & Yarnell, L. (2008). A reliability generalisation study of scores on Rotter's and Nowicki-Strickland's Locus of Control Scales. *Educational and Psychological Measurement*, 68(1), 97-119.
9. Betoret, F. D. (2013). Teacher psychological need, locus of control and engagement. *Spanish Journal of Psychology*, 16, 1-13.
10. Bitsadze, M., & Japaridze, M. (2016). Locus of control in Georgian teachers and its relation to teacher burnout. *Locus of Problems of Management in the 21<sup>st</sup> Century*, 11(1), 8-15.
11. Bulus, M. (2011). Goal orientations, locus of control and academic achievement in prospective teachers: An individual differences perspective. *Educational Sciences: Theory and Practice*, 11(2). 540-546

12. Cascio, M. I., Magnano, P., Elastico, S., Constantino, V., Zapparrata, V., & Battiato, A. (2014). *The relationship among self-efficacy beliefs, external locus of control and work stress in public setting schoolteachers*. *Open Journal of Social Sciences*, 2(11), 149-156.
13. Devin, H.F., Ghahramanlou, F., Fooladian, A., & Zohoorian, Z. (2012). *The relationship between locus of control (internal-external) and happiness in pre-elementary teachers in Iran*. *Social and Behavioural Sciences*, 46, 4169-4173.
14. Frankham, J. (2019). *Develop your internal locus of control*. [online] Available at: [joannafrankham.com](http://joannafrankham.com)
15. Ganji, A.A., Vardanyan, K. and Navabinezhad, D. (2013). *The relationship between locus of control and teachers' job satisfaction*. *Life Science Journal*, 10(2), 277-284. 18).
16. Hans, A., Mubeen, S. A., & Al Ghabshi, A. S. (2014). *A study on locus of control and job satisfaction in private international schools in Sultanate of Oman*. *International Journal of Application of Innovations in Engineering and Management*, 3(1), 91-98.
17. Hilgers, M. (n. d.). *Changing from external to internal locus of control*. [online] Available at: [michaelhilgerslpc.com](http://michaelhilgerslpc.com) [Accessed 12 January 2021]
18. Jeloudar, S. Y., & Lotfi-Goodarzi, F. (2012). *Predicting teachers' locus of control and job performance among MA and BA teachers in senior secondary schools*. *International Journal of Humanities and Social Science*, 2 (12), 248-252.
19. Joo, Y. J., Lim, K. Y., & Kim, J. (2013). *Locus of control, self-efficacy, and task value as predictors of learning outcome in an online university context*. *Computers & Education*, 62, 149-158.
20. Khan, A. A., Saleem, M., & Sahid, R. (2012). *Buffering role of locus of control on stress among the college/university teachers of Bahawalpur*. *Pakistan Journal of Commerce and Social Science*, 6 (1), 158-167.
21. Kiral, B. (2019). *Exploring the relationship between teachers' locus of control with different variables*. *Educational Policy Analysis and Strategic Research*, 14 (2), 88-104.
22. Kirmizi, O., & Saricoban, A. (2018). *Prospective EFL teachers' locus of control and academic self-efficacy in Turkish context*. *Journal of Language and Linguistic Studies*, 14(3), 308-324.
23. Kourmousi, N., Xythali, V., & Koutra, V. (2015). *Reliability and validity of the multidimensional Locus of Control IPC Scale in a sample of 3668 Greek educators*. *Social Science*, 4, 1067-1078.
24. Lange, R.V., & Tiggemann, M. (1981). *Dimensionality and reliability of the Rotter I-E Locus of Control Scale*. *Journal of Personality Assessment*, 45(4), 398-406.
25. Malarkodi, A., & Magdalin, S. (2019). *Relationship between locus of control and self-efficacy among special educators*. *The International Journal of Indian Psychology*, 7(2), 559-606.
26. Mahajan, N., & Kaur, J. (2012). *Relation between locus of control of college teachers and their job satisfaction*. *International Journal of Applied Psychology*, 2(5), 98-103.
27. Malarkodi, A., & Magdelin, S. (2019). *Relationship between locus of control and self-efficacy among special educations*. *International Journal of Indian Psychology*, 7 (2), 509-606.
28. Manjunath, H. P. (2020). *A study on relationship between job satisfaction with occupational stress, locus of control and job involvement among male and female pre -university college teachers*. *International Journal of Research and Analytical Reviews*, 7(2), 6-10.
29. Marsh, H. W., & Richards, G. E. (1986). *The Rotter locus of control scale: The comparison of alternative response formats and implications for reliability, validity, and dimensionality*. *Journal of Research in Personality*, 20(4), 509-528.
30. Roscoe, J.T. (1975). *Fundamentals Research Statistics for Behavioural Sciences*. (2nd.), in Hill, R. (1998). "What sample size is 'enough' in Internet survey research"? *Interpersonal Computing and Technology: An electronic Journal for the 21<sup>st</sup> Century*.

31. Rotter, J. B. (1966) *Generalised expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, 80, 1-28.*
32. Scott, E. (2020). *How to develop an internal locus of control. [online] Available at: [www.verywellmind.com](http://www.verywellmind.com)*
33. Senler, B. (2016). *Pre-service science teachers self-efficacy: The role of attitude, anxiety and locus of control. Australian Journal of Education, 60(1), 26-41.*
34. Sunbul, A. M. (2003). *An analysis of relations among locus of control, burnout and job satisfaction in Turkish high school teachers. Australian Journal of Education, 47(1), 3-4.*
35. Tas, I., & Iskender, M. (2018). *An examination of meaning in life, satisfaction with life, self-concept and locus of control among teachers. Journal of Education and Training Studies, 6(10). 21-31.*
36. Yesilyurt, E. (2014). *Academic locus of control, tendency towards academic dishonesty and test anxiety levels as the predictors of academic self-efficacy. Educational Sciences, Theory & Practice, 14(5), 1945-1956.*