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# An Investigation into the Teachers' Perceptions and Beliefs Regarding Contextual Factors on their Agency Regarding Teaching Efficacy of Teaching Biology

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## ABSTRACT

This quantitative study has been conducted to investigate the teachers' perceptions and beliefs in particular school context about his/her agentic role to teach Biology curriculum. For this purpose, there were 512 Biology teachers from high schools of 4 regions at Punjab based on diverse literacy rate were selected with the help of random sampling. A questionnaire for secondary school Biology teachers was developed, pilot tested by the researcher and validated by taking the experts' opinion. The questionnaire consisted of 30 items addressing two factors including: School's Professional Culture; Teacher's Professional Problems; Curricular Objectives of School. The reliability was ascertained by calculating Cronbach Alpha which was .69. Then it was administered to the sample to collect the data from the sample. The collected data were analyzed with the help of Percentage scores in SPSS 22.0. This study revealed that contextual factors such as school culture, professional challenges, and curriculum priorities significantly shape teachers' agency and efficacy in teaching Biology. Teachers often relied on traditional, exam-oriented methods due to workload pressures, limited recognition of innovation, and resource constraints. These findings highlight the need for supportive institutional policies that empower teachers to adopt more creative, student-centered approaches.

**Keywords**: Teachers' Agency; Teaching Efficacy; Teaching Biology

## INTRODUCTION

Quality education as one of the sustainable development goal has made education process a major focus for research. The unsatisfactory quality indicators of education process bring back to review the interconnection of various elements of education process in relation to policy objectives. The environmental or contextual factors might effect in a complex way teaching of curriculum, though curricular designing and development, instruction technology and teacher training for the

generic issues of education are largely researched but on the other hand teaching context has been rarely researched for the educational settings especially in country like (Pakistan Vanderkruik & McPherson, 2017).

Researchers have explored the teaching context and characterized it with multifaceted factors such as curricular issues, interpersonal relationships, and organizational or institutional characteristics that potentially influence what happens in the classroom (Perfecto, 2012; Perrotta, 2013). Those multifaceted factors of the educational context might be curricular objectives of the institute, teacher beliefs, perceptions and professional problems, professional culture of the education institute, workload and available time to complete educational tasks of the teacher. Barger (2016), described the lack of scholarship that explores the interrelation of contextual factors and teachers' decisions at the classroom level and those common contextual factors might be school culture, teachers' problems, workload, curriculum objectives etc. Darling Hammond & Baratz Snowden, (2007) and Yin (2016) commented that instructional decision making is done according to the norms, constraints and affordances of the context.

Barger (2016) views the instructional decision making as dynamic and highly localized instead of static and standardized that balances the instructional goals with context. Johnson & Christensen (2014) referred Campbell (2012) about agency that it is always by means of context rather than in a context, views the relationship of context with teacher agency in relation to teaching efficacy. Barger (2016) emphasizes the interwoven nature of factors like institutional, interpersonal and curricular to make up teaching contexts thereby requiring to probe into the situated factors of every context. Coldwell (2018) urges about the agentic nature of context that its ignorance might dilute or minimize the interventions for better changes.

Priestley et al., (2016) argue the action of the teacher is the response of the context. Long et. al. (2017) described agency is conditioned by past experiences and lived realities of the teachers. Its first dimension of iteration involves the influences of past experiences and selection of action and thought from previous configuration and making its relation to the practical activity so it is not by habit rather redesigning of past experiences to implement in the present practice and to achieve the desired outcome for future.

Long et. al. (2017) described agency is conditioned by past experiences and lived realities of the teachers. Jenkins (2019) described teacher agency as the attempt of teacher to influence or control curriculum for desired teaching aims. According to Garrison (2013) environment is the context for teacher and the contextual factors refer to aspects of the school situations in which teachers' work that can potentially influence teachers' knowledge and practice. The existing literature refer to the multiple aspects of teaching learning as Zion et al., (2007) made a dynamic inquiry on teaching practices. Iqbal and Awais (2019) investigated about pedagogical beliefs of Biology teachers. Whereas the context by which the teacher was enabled and made ready to interact was very much less researched in teachers' training, curriculum and education management process. Those contextual factors might be

important or even a transforming reason for the education process. The interplay of those contextual factors like professional culture of the education institute, professional problems of the teacher, available time, workload and curricular objectives of the institute to make the teacher enabled to teach curriculum was needed to be addressed for educational settings. Context enables teacher and enablement of teacher to teach is called teacher agency. Agentic teacher might be needed instead of an ideal teacher for the successful teaching of curriculum so it led the research to explore the effects of contextual factors by which the teacher was enabled to do in the particular given context for his/her agentic role. The teaching context related problems might affect teacher agency (Zion, Cohen and Ami, 2007).

According to Priestly et al. (2016) agency includes teacher's past life history, qualifications and professional experiences, culture (ideas, values, beliefs, discourses, language), structure (social structures, relationships, roles, power, trust), material (resources, physical environment) and teaching aims of the school context. Whereas teacher beliefs act as filters for pedagogy and content in teaching Perfecto (2012) that mediate between action and knowledge of a teacher and are again associated to above mentioned dimensions of agency. Thus the interconnection of teaching context, teacher agency and curriculum teaching might be more researched and the study was aimed to explore the effects of contextual factors on teacher agency in relation to teaching efficacy to teach Biology curriculum at secondary level in high schools of Punjab.

The concept of teacher agency in education is vague and less traceable whereas teacher as a living being cannot be neutral of contextual realities to enact agency. Barger (2016) described agency as context bound like authority and freedom to make key curricular instructional decisions and cited Emam et al., (2022), Fitchett & Vanfossen (2013) scholarship about school culture and teacher beliefs as teaching contexts affecting teacher actions for classroom instructions.

The UNICEF study reports given in Minimum standard for quality education in Pakistan (2016) states a strong correlation between the availability of elements of effective school learning and improved student learning outcomes. Effective school learning elements emphasize building the capability of teachers through continuous development programs like teachers training workshops, refresher courses and incentives for having higher education degrees but agentic teacher might be needed instead of ideal teacher and the policy might neglect the professional culture and other contextual factors where teachers teach.

The ignorance of inter connection and interplay of situated realities educational endeavors for the academic community and society at large might not be fully exploited to have quality education as a sustainable development goal. The contextual factors and agency are lived reality of schools and teachers so the study was to explore the effects of contextual factors as independent variables on teacher agency in relation to teaching efficacy as dependent variable to teach Biology curriculum in secondary classes so that contextual factors and teacher agency in relation to teaching efficacy might be given more attention in educational research

for categorical disciplines and policy making in Pakistan.

The effects of contextual factors on teacher agency in relation to teaching efficacy is a multifaceted construct that demanded pragmatic paradigm for research so that pluralistic approaches might be used to derive knowledge to answer the research questions (Tashakkori & Teddlie, 2010). The perceptions and beliefs of the Biology teachers to execute agency in relation to teaching efficacy for curriculum teaching in their particular contexts might be quantified with the help of questionnaires to get random sample and to generalize the results on larger population. Further to explore the effects of contextual factors on the teacher agency based on those perception and beliefs interviews might be conducted to know their high, medium or low level of agency to teach curriculum by getting complementary but different data (Creswell, Plano Clark, et al., 2003).

Creswell (2014) identified that purposeful selection of participants and the interview questions to be asked for in depth understanding about the phenomenon might be informed by the quantitative results so explanatory sequential (complementary) mixed methods research design was followed for the study, as mixed methods research comprised of both quantitative and qualitative methodologies to collect questionnaire data deductively and interview data inductively. Both the collected and separately analyzed data sets were merged and interpreted to better explain and understand the effects of contextual factors on teacher agency in relation to teaching efficacy to recommend to the policy maker and future researcher.

## METHODOLOGY

This quantitative study has been conducted to investigate the teachers' perceptions and beliefs in particular school context about his/her agentic role to teach Biology curriculum. For this purpose, there were 512 Biology teachers from high schools of 4 regions at Punjab based on diverse literacy rate were selected with the help of random sampling. A questionnaire for secondary school Biology teachers was developed, pilot tested by the researcher and validated by taking the experts' opinion. The questionnaire consisted of 30 items addressing two factors including: *School's Professional Culture; Teacher's Professional Problems; Curricular Objectives of School*. The reliability was ascertained by calculating Cronbach Alpha which was .69. Then it was administered to the sample to collect the data from the sample.

### Data Analysis & Results

To know the Perceptions and beliefs of Biology teachers about execution of their agentic role for teaching in their contextual realities questionnaires were delivered to 512 sample subjects among 4 regions of Punjab, 428 questionnaires were returned back, there had been 83% response rate and 406 questionnaires were found completely answered for analyses. The data were analyzed with the help of percentage scores in SPSS 22. The detail is as under:

**Factor 1: *Professional culture of the school***

The results for the Factor 1: *Professional culture of the school* are as under*:*

**Q. 1 Classroom teaching is encouraged by good relationship with school principal.**

The results revealed that the answer against question item One twenty five (31%) Biology teachers were Strongly Agreed, 244 (60%) Agreed, 25 (6%) Neutral, 12 (3%) Disagreed and (0%) Strongly Disagreed.

**Q. 2 Teachers mostly follow their fellow teachers teaching method.**

The above graph revealed that the answer against question item One forty five (36%) Biology teachers were Strongly Agreed, 261 (64%) Agreed, 1 (0%) Neutral, 5 (1%) Disagreed and 1 (0%) Strongly Disagreed.

**Q. 3 The teachers teach in school according to the principal's advice for teaching.**

The above graph revealed that 46 (11%) Biology teachers were Strongly Agreed, 263 (65%) Agreed, 62 (15%) Neutral, 41 (10%) Disagreed and 1 (0%) Strongly Disagreed.

**Q. 4 Teacher design his/her to do list for school according to school culture.**

The above graph revealed that 77 (19%) Biology teachers were Strongly Agreed, 301 (74%) Agreed, 25 (6%) Neutral, 9 (2%) Disagreed and 1 (0%) Strongly Disagreed.

**Q. 5 Teachers make those efforts for better teaching which are easily possible to do in their school.**

The above graph revealed that 73 (18%) Biology teachers were Strongly Agreed, 260 (64%) Agreed, 54 (13%) Neutral, 25 (6%) Disagreed and 1 (0%) Strongly Disagreed

**Q. 6 Biology book memorization is important for academic results.**

The above graph revealed that 45 (11%) Biology teachers were Strongly Agreed, 340 (84%) Agreed, 18 (4%) Neutral, 9 (2%) Disagreed and 1 (0%) Strongly Disagreed.

**Q. 7 Online teaching has reduced teacher and student spontaneous interactions.**

The above graph revealed that 16 (4%) Biology teachers were Strongly Agreed, 324 (80%) Agreed, 38 (9%) Neutral, 34 (8%) Disagreed and 1 (0%) Strongly Disagreed

**Q. 8 Online teaching has reduced writing capability of students in post covid-19 period.**

The above graph revealed that 61 (15%) Biology teachers were Strongly Agreed, 341 (84%) Agreed, 1 (0%) Neutral, 9 (2%) Disagreed and 1 (0%) Strongly Disagreed.

**Q. 9 Traditional teaching is most suitable way to teach Biology in our classrooms.**

The above graph revealed that 36 (9%) Biology teachers were Strongly Agreed, 333 (82%) Agreed, 9 (2%) Neutral, 28 (7%) Disagreed and 0 (0%) Strongly Disagreed

**Q. 10 Teacher's novel efforts for better teaching in classroom remain unpublished in education journals.**

The above graph revealed that 102 (25%) Biology teachers were Strongly

Agreed, 231 (57%) Agreed, 44 (11%) Neutral, 34 (8%) Disagreed and 1 (0%) Strongly Disagreed.

**Q. 11 Good school support leads to high performance of a teacher.**

The above graph revealed that 333 (33%) Biology teachers were Strongly Agreed, 248 (61%) Agreed, 21 (5%) Neutral, 9 (2%) Disagreed and 1 (0%) Strongly Disagreed.

**Q. 12 Teachers remain unrewarded for their extra efforts in teaching.**

The above graph revealed that 145 (36%) Biology teachers were Strongly Agreed, 249 (61%) Agreed, 8 (2%) Neutral, 5 (1%) Disagreed and 5 (1%) Strongly Disagreed

**Factor 2: *Professional problems of the Biology teachers***

The results for the Factor 2: *Professional problems of the Biology teachers* are as under.

**Q. 13 A long distance between home and school is a problem for teacher.**

The above graph revealed that 135 (33%) Biology teachers were Strongly Agreed, 245 (60%) Agreed, 25 (6%) Neutral, 1 (0%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 14 Biology teacher's proficiency in English helps to explain Biology terminologies.**

The above graph revealed that 142 (35%) Biology teachers were Strongly Agreed, 264 (65%) Agreed, 0 (0%) Neutral, 5 (1%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 15 Biology teachers mostly deliver lecture in Urdu language.**

The above graph revealed that 38 (9%) Biology teachers were Strongly Agreed, 274 (67%) Agreed, 65 (16%) Neutral, 34 (8%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 16 Biology teacher's skill to use computer helps for rich lesson planning.**

The above graph revealed that 79 (19%) Biology teachers were Strongly Agreed, 306 (75%) Agreed, 21 (5%) Neutral, 5 (1%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 17 Biology teachers rely on text book for their latest update.**

The above graph revealed that 75 (18%) Biology teachers were Strongly Agreed, 253 (62%) Agreed, 54 (13%) Neutral, 29 (5%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 18 The teachers do not share their subject teaching problems among themselves in their break time.**

The above graph revealed that 37 (9%) Biology teachers were Strongly Agreed, 364 (90%) Agreed, 5 (1%) Neutral, 5 (1%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 19 The teachers do not share their subject classroom problems among themselves in their break time.**

The above graph revealed that 16 (4%) Biology teachers were Strongly Agreed, 336 (83%) Agreed, 29 (7%) Neutral, 30 (7%) Disagreed and 0 (0%) Strongly Disagreed

**Q. 20 I am taught Biology in school mostly with traditional method.**

The above graph revealed that 63 (16%) Biology teachers were Strongly Agreed, 343 (84%) Agreed, 0 (0%) Neutral, 5 (1%) Disagreed and 0 (0%) Strongly Disagreed

**Q. 21 It is difficult for a teacher to design a problem-solving lesson plan for Biology subject.**

The above graph revealed that 37 (9%) Biology teachers were Strongly Agreed, 344 (85%) Agreed, 6 (1%) Neutral, 5 (1%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 22 Most of the Biology concepts taught in matric are understood in inter classes.**

The above graph revealed that 100 (25%) Biology teachers were Strongly Agreed, 236 (57%) Agreed, 41 (10%) Neutral, 34 (8%) Disagreed and 0 (0%) Strongly Disagreed.

**Factor 3: *Curricular objectives of school***

The results for the Factor 2: *Professional problems of the Biology teachers* are as under.

**Q. 23 Good grades of students in Biology are preferred as school policy.**

The above graph revealed that 126 (31%) Biology teachers were Strongly Agreed, 245 (60%) Agreed, 19 (5%) Neutral, 12 (3%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 24 Work load of the teacher allows little for practical demonstration of the Biology concepts in class.**

The above graph revealed that 138 (34%) Biology teachers were Strongly Agreed, 258 (64%) Agreed, 5 (1%) Neutral, 6 (1%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 25 It is difficult to create critical thinking among students with traditional teaching.**

The above graph revealed that 70 (17%) Biology teachers were Strongly Agreed, 254 (63%) Agreed, 48 (12%) Neutral, 35 (9%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 26 It is difficult to create problem solving skill among students with routine teaching.**

The above graph revealed that 83 (20%) Biology teachers were Strongly Agreed, 295 (73%) Agreed, 18 (4%) Neutral, 11 (3%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 27 5 It is difficult to create creative thinking among students with routine teaching.**

The above graph revealed that 78 (19%) Biology teachers were Strongly Agreed, 263 (65%) Agreed, 43 (11%) Neutral, 23 (6%) Disagreed and 0 (0%) Strongly Disagreed

**Q. 28 It is difficult to create investigative behavior among students with routine teaching.**

The above graph revealed that 72 (18%) Biology teachers were Strongly Agreed, 311 (77%) Agreed, 14 (3%) Neutral, 10 (2%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 29 It is difficult to prepare students with the ability to apply bookish knowledge in daily life with routine teaching.**

The above graph revealed that 32 (8%) Biology teachers were Strongly Agreed, 313 (77%) Agreed, 35 (9%) Neutral, 27 (7%) Disagreed and 0 (0%) Strongly Disagreed.

**Q. 30 It is difficult to give the students opportunities to perform experiments on their own to satisfy individual queries.**

The above graph revealed that 130 (32%) Biology teachers were Strongly Agreed, 257 (63%) Agreed, 14 (3%) Neutral, 5 (1%) Disagreed and 0 (0%) Strongly Disagreed.

## CONCLUSION

This study investigated teachers' perceptions and beliefs regarding the impact of contextual factors on their agency and teaching efficacy in Biology at the secondary level. The findings revealed that the professional culture of schools strongly shaped teachers' practices, with most teachers aligning their methods to the principal's advice, fellow teachers' approaches, and school norms. While good school support enhanced performance, teachers' innovative efforts often went unrecognized, and reliance on memorization and traditional teaching methods remained dominant. Additionally, professional challenges such as long travel distances, reliance on textbooks, language barriers, and limited collaboration among colleagues restricted teachers' capacity to design problem-solving or inquiry-based lessons.

The results further highlighted that curricular objectives of schools prioritized grades and syllabus completion over creativity, critical thinking, and practical application. Heavy workloads and large class sizes left little room for laboratory work or student-centered activities, reinforcing a reliance on lecture-based teaching. Collectively, these findings suggest that contextual factors substantially limit teachers' agency, resulting in reduced teaching efficacy and a persistence of traditional, exam-driven instruction. Strengthening teacher agency requires systemic reforms that provide resources, reward innovation, and align school policies with deeper educational goals beyond examination performance.

### Recommendations

The following recommendations have been made based on the results.

1. **Enhance Institutional Support for Teacher Agency:** Schools should create professional cultures that recognize and reward innovative teaching practices in Biology, encourage collaboration among teachers, and provide structured opportunities for professional growth beyond routine textbook reliance.
2. **Reform Curriculum and Workload Policies:** Policymakers and school administrations should balance exam preparation with inquiry-based and practical learning by reducing excessive workloads, ensuring access to laboratory resources, and aligning curricular objectives with creativity, problem-solving, and critical thinking.

## REFERENCES


Akram, (2020). *The multiple roles of teacher and teacher training in Pakistan*, Govt.Graduate College Burewala Pakistan. DOI: 10.5281/zenodo.3408192

Bandura, A. (2006). Toward a psychology of Human Agency. *Perspectives on Psychological Science, 1*(2), 164–180

Campbell, E. (2012). Teacher agency in curriculum contexts. *Curriculum Inquiry, 42*(2), 183–190.

Coldwell, M. (2018). Reconsidering context: *Six underlying features of context to improve learning from evaluation.* Sheffield Hallam University, UK. Sage.

Cresswell & Clark, P. (2003). *Mixed methods research* United Kingdom Sage Publications

Creswell, John W. (2014). Research design: *Quantitative, qualitative & mixed methods approaches.* 4th-Ed. London: United Kingdom Sage Publications

Darling-Hammond, L, & Baratz-Snowden, J. (2007). A good teacher in every classroom:

Preparing the highly qualified teachers our children deserve. *Educational Horizons*, 111–132.

Emam, M., Hilal, Mahdy, (2022). Between think big & hit hard' exploring the role of teacher agency in becoming action researchers: The Egyptian context.

Educational action research.

Fitchett, P. G., & Vanfossen, P. J. (2013). Survey on the status of social studies:

Development and analysis. *Social Studies Research and Practice*, *8*(1), 1–24.

Garrison, (2013). L. A. *Understanding teacher and contextual factors that influence the*

*enactment of cognitively demanding mathematics tasks* Dissertation submitted to the Faculty of the Graduate School of Vanderbilt University.

Iqbal, Awais, (2019). Biology Teachers' Pedagogical Beliefs and Practices at Secondary School

Level in Punjab Journal of Research and Reflections in Education December 2019, Vol.13, No 2, pp 282-293 http://www.ue.edu.pk/jrre University of Education, Lahore Pakistan.

Johnson, B., & Christensen, L. B. (2014). *Educational research: Quantitative,*

*qualitative, and mixed approaches* (Fifth ed.). Thousand Oaks, CA: Sage Publications.

Long, et.al. (2017). Enabling and Constraining Conditions of Professional Teacher Agency*: The*

*South African Context*. Contemporary Education Dialogue 14(1) 5–21 SAGE Publications.

Perfecto, M. R. G. (2012). Contextual factors in teacher decision making: Extending the Woods

model. *The Asia-Pacific Education Researcher, 3*, 474–483.

Perfecto, M. R. G. (2012). Contextual factors in teacher decision making: Extending the

Woods model. *The Asia-Pacific Education Researcher, 3*, 474–483.

Perrotta, C. (2013). Do school-level factors influence the educational benefits of digital
technology? A critical analysis of teachers' perceptions. *British Journal of Educational Technology*, *44*(2), 314–327. doi:10.1111/j.1467- 8535.2012.01304.x
Priestley et.al. (2015). The teacher and the curriculum: exploring teacher agency. In D. Wyse, L.
Hayward & J. Pandya (Eds.), *The SAGE Handbook of Curriculum, Pedagogy and Assessment*. London: SAGE Publication.
Tashakkori, A., & Teddlie, C. (EDs.). (2010). SAGE *hand book of mixed methods in social and*
*behavioral research* (2nd ed.). Thousand Oaks, CA: Sage.
Vanderkruik, R. & McPherson, M. E. (2017). A contextual factors framework to inform
implementation and evaluation of public health initiatives. *American Journal of Evaluation* 38(3): 348–59.
Yin, R. K. (2016). Qualitative research from start to finish (2nd ed.). NewYork, USA:
Guilford Publications.
Zion, Cohen & Ami, (2007). The spectrum of dynamic inquiry teaching practices.
Research in science education. 37(4): 423-447 DOI: 10. 1007/s11165-006-9034-5.