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# 我国研究型大学本科拔尖创新人才培养研究

**A Study on Cultivation of Top-notch Innovative Undergraduates in Chinese Research University**

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## 摘 要

随着国家创新型国家建设计划的不断推进,拔尖创新人才培养逐渐成为一个备受教育主管部门关注的话题。为此,教育部在研究型大学本科教育层面推行了一系列政策实施拔尖创新人才培养计划。然而,及至目前国内学术界还没有形成对本科拔尖创新人才培养的系统研究,具体表现为:关于本科拔尖创新人才培养目标尚不清晰、具体的培养方案并不明确、培养效果无法依据一定的标准进行衡量,这就使得实践缺乏明确的理论指导和有计划的推进,因此研究本科拔尖创新人才的有效培养问题成为一个迫切需要解答的现实课题。鉴于该问题的理论研究极其匮乏和实践经验总结严重不足,本研究运用思辨研究与质性研究相结合的方法,从理论探索、案例分析、模式总结三个方面进行了深入探究。

在理论探索部分,本研究探明了拔尖创新人才的特质与本科教育之间的关系。通过对一些已经做出突出贡献的创新人才的成长经历分析发现创新人才普遍具有强烈的社会责任感、浓厚的科学兴趣、顽强的求学意志、突出的科研潜质等显著品质。他们的本科阶段一般都是在著名大学接受了通才式的精英教育。这告诉我们,在研究型大学的本科创新人才的选拔过程中应注重学生的社会责任感和学术兴趣、钻研精神等方面的考察,在培养过程中要注重宽厚知识基础和追求卓越的精神气质的塑造。

在案例分析过程中,本研究选择了我国四所著名的研究型大学作为案例,对其培养过程进行了质性研究,深度访谈了一批教师和学生,并对其培养计划文本进行了细致分析,发现存在三种明显不同风格的培养模式:一种是“封闭—集中”式培养,即采用单独编班和制定统一课程计划的方式来进行,具体表现为在学生选拔中以成绩作为首要的依据,在培养方案和要求上也不同于普通班,在课程内容和教学方式上进行了一系列改革探索,如拓宽原有的专业课程基础、提升课程学习难度和广度、增设前沿课程、实行小班教学,并一定程度上改变传统的教学方式和考试方式,如采用启发式教学、探究式教学和多样化的考试方式等,设置一定的科研活动和科研训练项目要求学生完成。另一种是“开放—集中”式培养,即并未单独编班,也未采用统一课程计划,只增加了部分研讨性课程和系列化的

科研训练项目,而且这些活动往往还对其他有兴趣的学生开放,但是要求入选“拔尖计划”的学生必须参与研讨活动和科研项目并且完成一定的科研训练任务。第三种是“开放—自由”式培养,即并未单独编班,也未采用统一课程计划,除正常的课程教学计划外,不对学生增加其他的学习要求,学院提供资源和条件鼓励学生自由探索学习。通过进一步的访谈发现,由于“封闭—集中”式培养中采取了较多的课程与教学改革探索,故而学生对课程满意度较高,也认为班级的学习氛围良好,但不足之处是它容易产生光环效应,学生会因为某种外在的荣誉和光环而非兴趣留在拔尖班。而在“开放—集中”和“开放—自由”式培养的条件下,由于课程和活动具有较强的开放性,拔尖学生和其他学生之间不存在明显界限和区别,因此学生没有被光环所影响,主要遵从自己的兴趣入选计划,从而内在学习动力放大。但“开放—集中”式和“开放—自由”式培养对课程和教学的改革幅度较小,学生难以体验改革带来的变化,所以对教学满意度较低。同时,“开放—集中”式培养下,由于过于强调统一培养而忽视了学生的自主性,也容易流失部分有学术兴趣的学生。

不论是“封闭—集中”式、“开放—集中”式还是“开放—自由”式,其共同特征在于:在选拔中注重成绩和志趣、在培养过程中注重科研课题训练,同时注重提供优越的学习条件作为保障。它们面临的共同问题是:缺乏明确的培养目标,培养过程对学生的兴趣激发不足,课堂教学方式比较传统,导师制效力没有充分发挥,特别是以升学作为评价标准的评价方式难以凸显拔尖创新人才培养初衷等问题。

根据创新人才的基本特征和针对目前拔尖创新人才试验中存在的问题,本研究认为,拔尖创新人才试验应该同时重视外部激励和内在学术兴趣激发,因此理想的培养模式应该是“封闭—自由”式,即在培养方式上采用单独编班,但在培养过程中应鼓励学生自由探索,尤其要重视对教学方式进行改革。

关键词:拔尖创新人才;研究型大学;本科培养模式

## Abstract

With the advancement of plans of construction of innovative nation, the cultivation of top-notch innovative talents has gradually draw particular attentions. Therefore, our country carry out a series of policy in the higher education, especially in the undergraduate education of the research universities, to implement the training plan of top-notch innovative talents. However, a systematic study of undergraduate education for top-notch innovative talents has not been established yet. The concrete manifestations are as follow: the goals of talents cultivation is unclear, the program of talents cultivation is indefinite, and the effect of talent cultivation is unmeasurable. These disadvantages make the practice of talents cultivation lack of explicit theoretical guidance and well planned advancement. Therefore, how to implement the cultivation of top-notch innovative talents in the undergraduate education becomes an urgent practical issue to be solved. Since, in the study of that problem, the theoretical research is deficient and the summary of reality is insufficient, in this thesis I do deep research on this question from three aspects of theoretical exploration, case analysis and mode summarize using the combination of philosophical research and qualitative research.

In the theoretical exploration part, I firstly identify the relationship between characteristics of undergraduate top-notch innovative talents and undergraduate education. Through the analysis of a few innovative talents who have already made outstanding contributions, I find that the innovative talents should have strong sense of social responsibility, great interest in science, indomitable will of study and huge potential of scientific research. They usually got general education in famous universities at the stage of undergraduate education. This tell us that we should pay much attention to investigate student's sense of responsibility, interest and spirit of hard study in the selection process of innovative talents in the research universities, and we also should lay emphasis on the shaping of broad and deep knowledge basis as well as ethos of pursuing excellence.

In the case analysis part, I choose four famous research universities of our country as study cases in which I do qualitative research on cultivation process. I conduct in-depth interviews with a lot of teachers and students, and carefully analyze the constitution of cultivation program. As a result, I find that there are three distinct cultivation modes. The first mode is the “closed—concentrate” style, in other words, the selected



talents are in a separated class. Under this mode, the academic score is the primary criterion of the selection, and the cultivation program and requirements are distinguished from the common class, and a lot reforms are established on curriculum content and teaching method, such as broadening original basis of professional courses, increasing the difficulty and scope of courses, setting additional courses of scientific frontier, implementing small class teaching, partly changing traditional teaching methods and examination methods, utilizing heuristic teaching, inquiry teaching and various examination methods, setting up certain research activities and scientific research projects for talents to complete. The second mode is “open—concentrate” style, in other words, the selected talents are in common classes. Under this mode, only seminars and training in scientific programs, which are usually also open for other students, are added. Furthermore, this mode requires that the selected talents must take part in several seminars and scientific projects and must finish certain scientific training task. The third mode is “open—free” style, in other words, the selected talents are in common classes. Under this mode, there is no additional learning task beyond the normal teaching plans. The talents are encouraged to freely explore and study with resources and conditions provided by the college. With further interviews, I find out that, since a lot of courses and teaching reform are utilized in the “closed—concentrate” style, selected talents have higher satisfaction with courses and also approve the good study atmosphere in the separated class. However, the “closed—concentrate” style easily cause halo effect. As a result, talents will keep stay in this separated class for some kind of honor and glory halo but interest. In the “open—concentrate” and “open—free” style, since there are no obvious boundary and difference between selected talents and normal students, the selected talents are not effected by honor halo and they will mainly follow their own inner interest, leading to amplified intrinsic motivation of study. However, due to the little reform of course and teaching in these two styles, the talents are difficult to experience the changes cause by teaching reformations, and then they have a lower satisfaction with teaching. Meanwhile, in the “open—concentrate” style, since the mode stress the unity of cultivation too much but neglect the students’ autonomy, it will cause the drop-out of students with academic interest.

The same features among “closed—concentrate” style, “open—concentrate” style and “open—free” style are that emphasizing academic scores and interest in the selec-

tion, paying attention to training in scientific programs in the cultivation process, focusing on providing superior conditions as guarantee. However, there are still some common problems in them, including lack of clear goal of cultivation, short of inspiring students' learning interest in cultivation process, still using the traditional teaching methods in classroom, tutorial system not releasing its full potential, especially the evaluation method taking entrance higher level as criterion not displaying the original intention of top-notch innovative talents cultivation.

According to the basic characteristics of innovative talents and contraposing the problems existing top-notch innovative talents cultivation experiment, this study conclude that we should pay much attention to both external excitation and intrinsic motivation of academic interests. Therefore, the ideal cultivation mode is the “closed—free” style. Under this mode, the selected talents are in a separated class, and we encourage the talents to freely explore in the cultivation process, and focus on reform of teaching method.

**Key words:** Top-notch innovative talents; Research university; Cultivation mode of undergraduate education.

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