

## Evaluation of the Pharmaceutical theses of the government Universities of Tehran and Shahid Beheshti based on ISO 7144 during 2008 to 2012

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### ABSTRACT

University theses and dissertations are among those credible sources of information which, with regard to their given status of value, and the use of update resources using the international regulations and standards, can be perfect sources for optimal recovery of information and can increase the scientific credibility. This study reviews the accordance of the Pharmaceutical theses of Shahid Beheshti University of Medical Sciences and the University of Tehran with the ISO 7144 standards: 2008-2012. 765 pharmaceutical theses of Shahid Beheshti University of Medical Sciences and the University of Tehran at both general and specialized levels were studied, using an analytical method. Data collection was based on the checklist prepared according to ISO 7144 standards. The comparisons were performed based on the t-test, using SPSS software. The results manifested that the theses done at Shahid Beheshti University of Medical Sciences adhered more to the ISO standards compared to the University of Tehran. The study also revealed that the mean score of the adherence to the standards of ISO has been more in specialized theses than the general ones. Moreover, it suggests that, due to their scientific and practical nature, theses are among the most important sources, and therefore, the manner through which the data is inserted, is of utmost importance. The accordance of the studied theses of both general and specialized themes in both universities to ISO 7144 standards is below the %50 of the desired standard and has a long way to go to reach the desired status.

**Keywords:** ISO 7144; Shahid Beheshti University of Medical Sciences; Tehran University of Medical Sciences; Pharmaceutical thesis

### INTRODUCTION

Students' theses or dissertations have been described as a stepping-stone and reflection of a student's potential in becoming an independent researcher. It is therefore important to verify how students handle these issues [1, 2]. Furthermore, developing and publishing the academic findings of theses and dissertations based on the international standards can lead to their perfect retrieval of information as they are among the most credible and prestigious sources of information. These kinds of scientific materials are among of the major sources of authentic in-depth information on a particular topic on which a researcher conducts extensive research work. In spite of being a main source of scholarly communication, the print theses and

dissertations are mostly not accessible to outside world. In this way, the important information remains unused and unknown to users [3]. In other words, some believe that the majority of the dissertations and theses remain unknown and not applicable in academic settings and remain off the grid of availability, simply due to the weak scientific infrastructure and the lack of accordance to the international esteems and standards. The existence of specialized patterns and international standards can improve their application and retrieval at the international levels [4]. Today, there are certain patterns and international standards which can be used in theses and dissertations. If these documents were considered as main tools at the initial stages of writing, there could be more dissertation and

thesis citations in the international range. There are good reasons why students should publish a paper of their theses: Science progresses in small steps: a journey of a thousand miles begins with a single step [5]. One study in 1993 reveals that almost half of the dissertations and theses in Great Britain are published in international periodicals [6], whereas a similar survey in Iran manifests that a mere 10 percent of the theses are published in national periodicals and a less than 10 percent appear in the international ones. Regarding the mentioned issue, some believe the reason goes back to the lack of familiarity of the students with the set standards of theses inscription [7]. Standardizing the methods of writing theses and dissertations is one key point towards the progress and unity of different countries across the world [8] and any deficiency in this regard can afflict the whole process; consequently, unifying such standards and familiarizing the students with these set standards are of utmost importance in pursuit of reflecting the scientific results within the national and international borders. To that end, following the ISO 7144 standard is amongst the most important factors. ISO 7144 has been established in 1986 and been revised in 2012 [9]. The present study aimed at identifying the degree of accordance of the theses and dissertations performed in the field of pharmacy within Shahid Beheshti University of Medical Sciences and Tehran university of Medical sciences to the standards of ISO 7144 in pursuit of specifying the importance of such documents in the context of fundamental and original researches. The findings may direct the authorities' attention towards the standard pattern observance, helping to the acquisition of the needed merits and credits for such fundamental and goal-oriented researches.

## MATERIALS AND METHOD

This research encompasses all the pharmacy theses and dissertations of Shahid Beheshti University of Medical Sciences and the Medical University of Tehran during the years 2008 to 2012 through an analytical survey method. Of the total of 765, 249 belonged to Shahid Beheshti University of Medical Sciences and 516 to Tehran university of Medical sciences, among which 554 were general and 211 were specialized ones. Data collection included the ISO 7144- checklist with 21 items as follows:

1. End matter
2. Cover
3. Title-leaf
4. Title
5. Copyright
6. Errata
7. Abstract
8. Preface
9. Table of contents
10. List of illustrations and tables
11. Main text
12. Illustrations and tables: layout and reproduction
13. List of bibliographic references
14. Annexes
15. Index
16. The required standards to be followed in Persian thesis

Data collection was performed through direct observation; the data collected were then transferred to the SPSS spreadsheet. For the purpose of data analysis, any followed standard got 1 point and any non-followed one got 0. In case of the excess in the number of sub-categories (more than 1) of a variable, the average was calculated. Following the data analysis for each variable based on the descriptive statistics, an independent t-test was employed with the intention of comparing the universities and the relevant semesters, using the SPSS software.

## RESULTS

Findings of the study manifested that Shahid Beheshti University of Medical Sciences and Tehran University of Medical Sciences scored on the degree of following the 22 standards of the ISO 7144 respectively as follows:

1. Physical form: %100
2. Body of thesis: %100 - %99
3. Cover: %99
4. Numbering of sections, clauses and sub-clauses: %95 - %98
5. List of illustrations and tables: %96 - %88
6. Copyright: %0
7. Errata: %0
8. End matter: %0 - %0.1
9. Index: %0.1 - %0.15
10. Annexes: 23 - 13
11. The required standards to be followed in Persian thesis: %2 - %21
12. Preface: %25 - %9

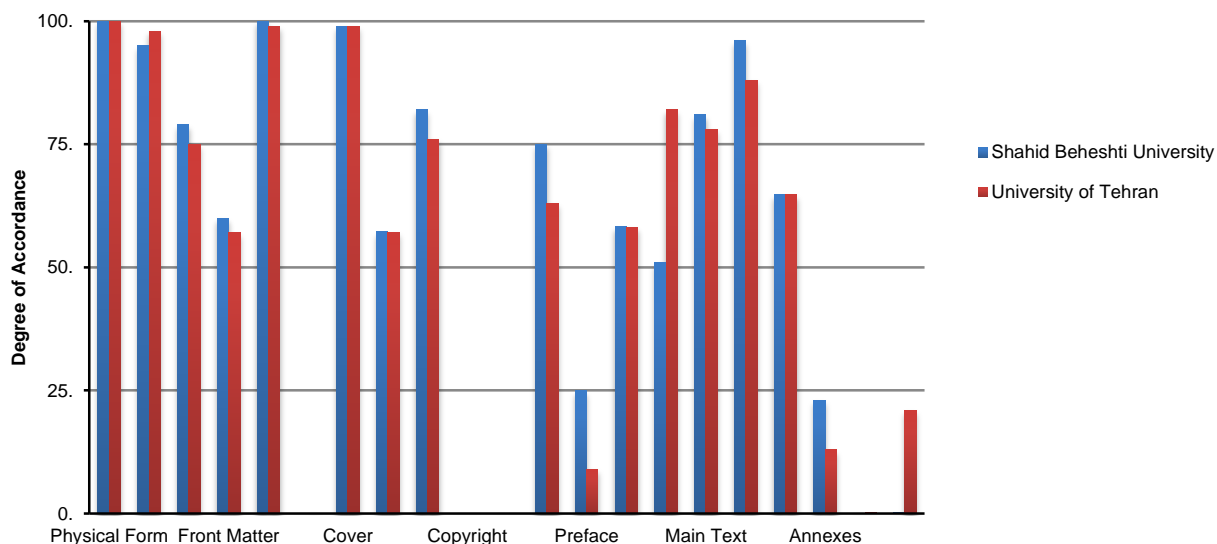


Figure 1 Ratio of accordance to ISO 7144 based on University

Moreover, the findings of the study manifested that the general and specialized courses in Shahid Beheshti University of Medical Sciences and the Medical University of Tehran scored on the degree of following the aforementioned standards respectively as follows:

Physical form: %100

Body of thesis: %99 - %100

Cover: %99 - %100

Illustrations: %90 - %91

Copyright: %0

Errata: %0

End matter: %0.09 - %0

Index: %0.09 - %24

Annexes: %15 - %20

The required standards to be followed in Persian thesis: %14 - %12

Preface: %16 - %0.8

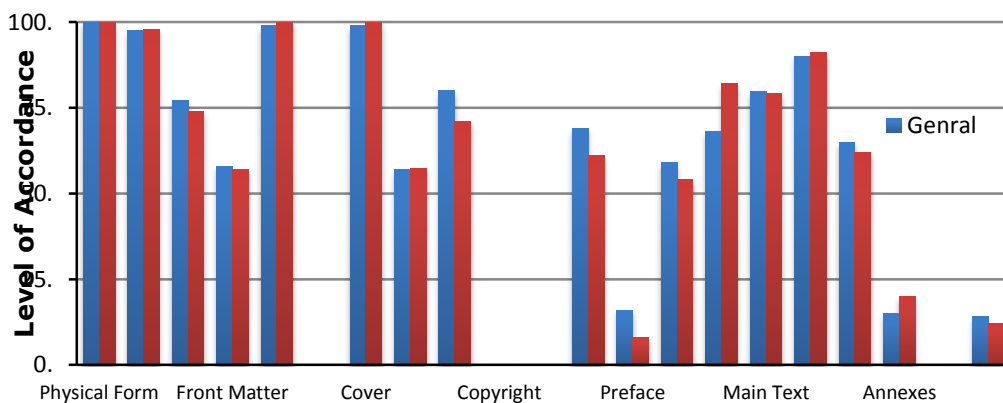


Figure 2 Ratio of accordance to ISO 7144 to the degree

An independent t-test demonstrated that Shahid Beheshti University of Medical Sciences proved to be following the standards of ISO 7144 significantly more than Tehran University of Medical sciences, with a meaningful P Value of 0.001 in the following variables: a) numbering of the pages b) Front matter c) title d) abstract e) preface f) body of thesis g)

illustrations and h) annexes. Moreover, University of Tehran manifested a higher ratio compared to Shahid Beheshti University in the degree of accordance in the following parts: "Numbering of sections, clauses and sub-clauses", "List of illustrations and tables", "The required points to be followed in Persian thesis" with a significant P-Value (P-Value 0.001) and

"End Matter" with a meaningful P-Value (P-Value = 0.04).

The followings are the results derived from a comparison between the two levels of "General" versus "Specialized" thesis: The "General" level showed a much more meaningful difference compared to the "specialized" level as in "Numbering of the pages", "Title", "Abstract", "Preface", "Table of contents", and "references" with the P-Value < 0.001, "Main text" and "The required standards in the Persian thesis" with a P-Value = 0.001, and the "Front matter" with a P-Value of 0.002. Regarding the accordance to the standards of "Illustrations and tables" (P- Value < 0.001) and Index (P- Value = 0.004), the "specialized" level proved to be higher than the "general" level.

## **DISCUSSION**

Based on the findings of the present study, the research record of Shahid Beheshti University of Medical Sciences, together with the "general" level thesis in the field of Pharmacy proved to be on a much better level in regard with the accordance to some of the ISO 7144 standards; this may be due to the better collaboration of the university officials with the research specialists and their satisfactory supervision regarding the issue. One reason for the lack of accordance to some of the standards in the "specialized" level can be due to the excess of concentration over the "content" aspects, leading to a lack of attention towards the formal and technical aspects emphasized in the ISO standard. Nonetheless, for the purpose of having more credit, one can pay sufficient attention to both content and technical and formal aspects; and this can be made possible through devising a standard format for the theses and dissertations by universities and a thorough observation over how they are utilized. The results are in complete harmony with the findings of Webster, et al. In their work, they studied bachelor level theses in seven different fields within the school of Social Sciences and Law, in Brooks University, Oxford. The results showed that 9 common standards were observed in the studied theses [10]. Karbalaa Aghaee Kamran, M. performed a survey over the degree of accordance to the ISO 7144 standards within the governmental universities of Tehran during the years 1987 to 1995. The results were indicative of

the fact that the standards of "Title", "Body of thesis" and "Table of contents" were followed more than the other sections [11]. Asadi Garakani, also reported over his survey on the dissertations (the specialized level) of Kerman Medical University during the years 1989 to 2000 as follows: More accordance over body of dissertation (%99.5) and title (%79.9) and less in the areas of table of contents (%52.7) and references (%53.9) [12]. Furthermore, Hosseinzadeh reported the most followed features of the ISO 7144 standards in "Physical form", "Body of thesis" and "Cover", while surveying the degree of accordance to the ISO standards among the Master's theses in educational management of the University of Tehran, Shahid Beheshti University and Allameh Tabatabaee University during the years 2001 to 2007. She also mentioned the least followed sections as "End matter", "Copyright", "Errata" and "Signs and Symbols"; "Glossary" and "Index" were referred as the non-followed sections in her study [13]. A simple comparison of the findings of this study with the aforementioned researches reveals that after 18 years we are still facing the same problems and no advancement has taken place. Moreover, the average of the accordance to the standards of ISO is reported as being below %50 in both of the universities. As university theses and dissertations are among those credible sources of information and are regarded as the primary source of research, any ignorance towards their structures will cause severe disruption in the data recovery process.

## **CONCLUSION**

Higher Education dissertations and theses are the training and testing of the capacity of the integrated use of a variety of abilities. [14]. It seems that the students need to be introduced to standards in any form of writing, among which theses and dissertations are of significance.

According to the findings of the present study, the degree of accordance to the standards of ISO 7144 in all of the studied theses and dissertations is as follows: Shahid Beheshti University of Medical Sciences (%49.76), Medical University of Tehran (%48.65), the general level (%49.19) and the specialized level (%48.54). This surely is indicative of the fact that the degree of accordance to ISO 7144 standard is below %50 and is way below the desired level. What seems quite essential is the

proper attention of the authorities of universities' graduate studies section to follow an international standard with regard to thesis and dissertation writing; codifying one uniform and consistent pattern in this regard can play an effective role in dynamism and reliability of the universities' scientific activities.

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