

Original Research Article

Benchmarking Naturopathy Education; Comparing the Indian and Ghanaian Curricula

ABSTRACT

Background: Ghana has developed two significant programs for modern naturopathic education in Africa. This success story makes Ghana one of the first countries in the West African sub-region to promote and advocate for the standardized structured naturopathic practice. This also makes Ghana join the likes of countries with a well-defined Naturopathic education such as South Africa, India, North America, and the like. In the case of South Africa, the Naturopathic program is offered at the School of Natural Medicine at the University of the Western Cape, a public institution. However, in the case of Ghana, there is a dedicated university for the promotion of naturopathy and Holistic Health programs. This, therefore, makes Ghana the first on the African continent to have a dedicated university to teach Naturopathy and Holistic Medicine. With a team of Naturopathic and Biomedical Science professionals in both clinical and academic practice, the Nyarkotey University College of Holistic Medicine & Technology (NUCHMT) provided a roadmap in this area. National Occupational Standard was further developed at the Higher National Diploma (HND) and Bachelor in Naturopathy and Holistic Medicine approved by the Commission for Technical and Vocational Education and Training (CTVET) for training two different cadres of Naturopathic Professionals. The HND aims to train Naturopaths and Bachelors to train Naturopathic Physicians. As part of training

professionals to meet international standards, the curricula were benchmarked as part of approval requirements. This research paper examines the Ghanaian naturopathic curriculum to assess if it meets the Indian model for training Naturopathic Physicians.

Objective. To critically review the Ghanaian naturopathy curriculum approved by the Commission for Technical and Vocational Education and Training(CTVET).

Method: This is qualitative research that used a document analysis. In this stage, we undertook an in-depth curricula evaluation and comparison with the Ghanaian Bachelor of Naturopathy and Holistic Medicine and the Indian Bachelor of Naturopathy and Yogic Sciences(BNYS).

Results. We found that the Ghanaian and Indian Naturopathy curricula have some similarities and differences. The difference between the Indian and Ghanaian programs is that the first year is extended in the Indian BYNS for additional 6 months.

Conclusion. The subjects offered in the Ghanaian naturopathic curriculum are on the same level as the Indian standards. However, the Indian curriculum has yogic sciences as an important aspect of naturopathic education which cannot be said in the Ghanaian curriculum.

Keywords: Naturopathy, Ghana, Indian, Nyarkotey, Bachelors

Introduction

In India, the guidelines for Naturopathic Practitioners' registration and Accreditation of naturopathy institutions document define Naturopathy [1]: "as drugless, non-invasive, a system of therapy involving the using of natural materials in its treatments based on the theory of vitality, the theory of toxemia, the theory of the self-healing capacity of the body and the

principles of healthy living.”

In Ghana, there has been some light shed on the Ghanaian law definition of Naturopathy as espoused in the Traditional and Alternative Medicine bill[2]. The bill defines Naturopathy as a system of healthcare usually drugless, which uses a wide variety of therapies including hydrotherapy, heat, massage, nutritional supplements, and herbal medicines with the purpose of stimulating optimum functioning of the whole person and supporting the person’s own innate healing capacity.” Additionally, the bill explained what constitutes “natural forces” in law and states: “means energies derived from light, heat, air, water, and physical manipulations that are used to stimulate the immune system to treat diseases[2]”

The manifesto of the British Naturopathic Association also states[3]: “Naturopathy is a system of treatment which lays emphasis on the existence of the vital curative force within the body.”

The Ministry of AYUSH[4] also defines Naturopathy as the most ancient health care mechanism that amalgamates modern scientific knowledge with traditional and natural forms of medicine”.

This exposition means that the modern naturopathy foundation is clothed with modern science with natural therapies. Naturopathy, therefore, believes in the healing power of nature, Naturopathy stimulates the human body’s ability to heal itself. It is the science of disease diagnosis, treatment, and cure using natural therapies including dietetics, botanical medicine, homeopathy, fasting, exercise, lifestyle counseling, detoxification, and chelation, clinical nutrition, hydrotherapy, naturopathic manipulation, spiritual healing, environmental assessment, health promotion, and disease prevention. Naturopathic practice is therefore eclectic and jurisdiction plays an integral role in shaping naturopathy to meet modern healthcare standards.

Naturopathic education is pivotal in reshaping modern Naturopathy. It takes the efforts and leadership of modern Naturopathic leaders to help streamline the profession.

In the case of Ghana, Nyarkotey University College of Holistic Medicine and Technology (NUCHMT) took the bold step to change the naturopathic education status quo. The college, a private initiative is devoted to higher education in Competency-Based Training (CBT) in the field of Naturopathic and Holistic Medicine[5].

The college in collaboration with the Commission for Technical and Vocational Education and Training(CTVET) team developed Ghana's first Higher National Diploma and Bachelor of Naturopathy and Holistic Medicine for the Ghanaian Naturopathic Community. In the case of India, there has been Naturopathic education for years. Rajiv Gandhi Health University is the foremost standardized university which is taken as guidelines for registration and also policy making[6].

National Institute of Naturopathy (NIN)[7], Pune, revised the Bachelor of Naturopathy and Yogic Sciences (BNYS) syllabus, to standardize BNYS syllabi with uniform durations and course contents across the country in 2012. It was implemented by Rajiv Gandhi University of Health Sciences (RGUHS) in the academic year 2013-14. Given new regulations, University restructured the BNYS course and issued an ordinance year-wise of the course in 1996. The present volume is published incorporating the amendments made by the National Institute of Naturopathy, Pune, to the regulations of the BNYS course and the addition of certain topics to the syllabi, as well as a change in duration from 5 years to 5½ years which includes 1-year internship program. Hence, we found the need to compare the Ghanaian Bachelor of Naturopathy and Holistic Medicine to the National Institute of Naturopathy (NIN), Pune, revised Bachelor of Naturopathy and Yogic Sciences (BNYS) syllabus being used at Rajiv Gandhi University of Health Sciences (RGUHS), in this research. Hence, this study aims to **critically review the Ghanaian naturopathy curriculum approved by the Commission for Technical and**

Vocational Education and Training(CTVET)to provide competence-based training in Naturopathic Medicine at the Nyarkotey University College of Holistic Medicine and Technology to improve the Ghanaian healthcare delivery.India was chosen as the benchmark measurement for Naturopathic education because India has a well-defined Naturopathic program running for years.

Methodology

This is qualitative research that used a document analysis. Bowen[9] explained that document analysis is a systematic procedure for reviewing or evaluating documents—both printed and electronic (computer-based and Internet-transmitted) material and benchmarking is one significant area in which document analysis could be used.In higher education settings, the modern or fourth generation of assessment models is inspired by enhancing student learning, mainly relying on wide-ranging qualitative data, and using the developmental continuous method with program development action plans. The fourth-generation models emphasize situated evaluation practices where the context of evaluation plays a major role in shaping the evaluation process[11].

We conducted a comparative document examination of the National Institute of Naturopathy (NIN)[7], Pune, revised Bachelor of Naturopathy and Yogic Sciences (BNYS) syllabus, which is being used at Rajiv Gandhi University of Health Sciences (RGUHS) in the academic year 2013-14. Given new regulations, University restructured the BNYS course and issued an ordinance year-wise of the course in 1996. The Ghanaian Bachelor's naturopathic curricula were approved in 2021 by the Commission for Technical and Vocational Education and Training (CTVET) and are being implemented by Nyarkotey University College of Holistic Medicine &

Technology(NUCHMT) promoter of modern naturopathy in Ghana and West Africa for the academic year 2023-2024.

Results

Structured naturopathic education is important to train Naturopathic Physicians and other medical staff. The Indian BNYS has total clock hours of 6525 for a 4 ½ + 1-year internship program at the faculty level[7]. The Ghanaian Bachelor of Technology Naturopathy and Holistic Medicine has a total of 5,979 for a five-year duration. Four years at the faculty level and one year of mandatory supervised clinical training[8]. In the case of the India program, the first-year BNYS is 1½ years duration and consists of pre-clinical subjects and subjects describing Yoga and Naturopathy principles, Anatomy, Physiology, Biochemistry, Philosophy of Naturopathy, Principles of Yoga, and Sanskrit.

The Ghanaian program also has the following subjects in the first year: Anatomy, Physiology Pathology, Medical Terminology, Healing Systems, Naturopathic History, Philosophy Principles and Theories, Chemistry and Biochemistry, First Aid and Emergency Medicine, African Studies, and Information Communication Technology(ICT).

Second-year BNYS is of 1-year duration and consists of Para-clinical subjects and subjects describing philosophies of Yoga and Naturopathy clinical subjects, Pathology, Microbiology, Community Medicine, *Yoga* Philosophy, Basic Pharmacology, and Colour therapy, and magneto biology. The second year of the Ghanaian program also consists of the following subjects and is one duration. Health Communication and lifestyle counseling, Microbiology & Parasitology, Clinical Examination/doctoring skills, Chemistry & Biochemistry, Naturopathic History, Philosophy Principles and Theories, Medical humanities, Traditional Chinese

Medicine/Acupuncture, Pharmacology &Pharmacotherapeutics, Neuroscience, Naturopathic Assessment and Diagnosis, Applied Nutrition, Clinical Naturopathy and Entrepreneurship, and Health Administration.

Third-year BNYS is of 1-year duration, and consists of Para-clinical subjects and Yoga and Naturopathy clinical subjects, Forensic Medicine and Toxicology, Manipulative Therapies, Acupuncture and Acupressure, *Yoga* and its applications, Nutrition and Medicinal Herbs, Diagnostic Methods (I and II) Naturopathy and Conventional Medicine, Psychology and Basic Psychiatry, and Fasting therapy and Dietetics. The third year of the Ghanaian program is also a year duration with the following subjects: Public Health & Health Promotion, Laboratory Investigation, Clinical naturopathy, Biostatistics and Bioinformatics, Internal Medicine, Clinical Nutrition, Applied Nutrition, Homeopathy, Herbal Medicine, Naturopathic Physical Medicine, Detoxification, Hydrotherapy, and Toxicology and Nutrigenomics &Nutrigenetics.

The final year of BNYS is of 1-year duration, and consists of clinical subjects and Yoga and Naturopathy clinical subjects Obstetrics and Gynecology, *Yoga* therapy, Hydrotherapy and Mud therapy, Physical Medicine and Rehabilitation, First Aid and Emergency Medicine, Clinical Naturopathy and Research Methodology, and Recent Advances. The Ghanaian final year program contained the following subjects: Internal Medicine, Clinical Nutrition, Homeopathy, Herbal Medicine, Naturopathic Physical Medicine, African Naturopathic Pharmacy, *Ayurveda*, Pharmacognosy, Research Methodology/project writing, Bach Flower Remedy, Mind Body Medicine, Functional and integrative Medicine, Medical Law and Ethics, Therapeutic Exercise and Massage. The fifth year in the Ghanaian program is for the mandatory clinical training which is structured into two parts: The first part exposes the students to the mainstream and allied health sciences and the second part exposes the students to the Naturopathic sciences. The

students undertake six weeks of departmental rotation in obstetrics and gynecology, surgery, pediatrics, and general medicine in the designated government hospitals. The naturopathic rotation also exposes them to homeopathy, traditional Chinese medicine/acupuncture, herbal medicine, physical therapies, and many more.

Comparison of the Indian and Ghanaian Bachelors Naturopathic Medicine Curricula

Table 1: Outline of the course content for the Indian (BYNS) and Ghanaian Naturopathic Medicine Programme (Btech)

BACHELOR OF NATUROPATHY & YOGIC SCIENCES INDIA		BACHELOR OF TECHNOLOGY NATUROPATHY & HOLISTIC MEDICINE-GHANA	
Course Title	Course Title	Course Title	Course Title
YEAR 1 SEMESTER 1 & 2	YEAR 3 SEMESTER I & II	YEAR 1 SEMESTER ONE	YEAR 3 SEMESTER ONE
Anatomy I	Manipulative Therapies	Anatomy I	Public Health & Health Promotion
Anatomy II	Acupuncture & Acupressure	Physiology I	Laboratory Investigation I
Physiology I	Yoga & Its Applications	Pathology I	Clinical naturopathy II
Physiology II	Nutrition & Medicinal herbs	Medical Terminology	Biostatistics and Bioinformatics
Biochemistry	Diagnostic Methods-I (Naturopathy)	Healing Systems I	Internal Medicine I
Philosophy of Naturopathy	Diagnostic Methods -II (Conventional Medicine)	Naturopathic History, Philosophy, Principles, and Theories I	Clinical Nutrition I
Principles of Yoga	Psychology & Basic Psychiatry	African Studies/ICT	Applied Nutrition
Sanskrit (Non-Exam)			
YEAR 2 SEMESTER 1 & 2	YEAR 4 SEMESTER I & II	YEAR 1 SEMESTER TWO	YEAR 3 SEMESTER TWO
Pathology	Fasting Therapy & Dietetics	Anatomy II	Internal Medicine I
Microbiology		Physiology II	Clinical Nutrition I
Community Medicine		Pathology II	Homeopathy I
Yoga Philosophy		Chemistry & Biochemistry I	Herbal Medicine I
Basic Pharmacology		Naturopathic History, Philosophy, Principles, and Theories II	Naturopathic Physical Medicine I
			Detoxification, Hydrotherapy, and

<p>Colour Therapy and Magneto biology Forensic Medicine & Toxicology</p>	<p>Obstetrics & Gynecology Yoga Therapy Hydrotherapy & Mud Therapy Physical Medicine & Rehabilitation First Aid and Emergency Medicine Clinical Naturopathy Research Methodology & Recent Advances</p> <p>YEAR 5 COMPULSORY INTERNSHIP PROGRAM</p> <p>Each successful trainee who completes the core subjects of the BNYS Course will undergo clinical training with</p>	<p>Healing Systems II First Aid & Emergency Medicine</p> <p>YEAR 2 SEMESTER ONE</p> <p>Health Communication and lifestyle counseling Microbiology & Parasitology I Clinical Examination/doctoring skills Chemistry & Biochemistry II Naturopathic History, Philosophy Principles and Theories III Medical Humanities Traditional Chinese Medicine/Acupuncture</p>	<p>Toxicology Clinical Training I Nutrigenomics & Nutrigenetics</p> <p>YEAR 4 SEMESTER ONE</p> <p>Internal Medicine II Clinical Nutrition II Homeopathy II Herbal Medicine II Naturopathic Physical Medicine II African Naturopathic Pharmacy Ayurveda Clinical Training II</p> <p>YEAR 4 SEMESTER TWO</p> <p>Pharmacognosy Research Methods/project writing Bach Flower Remedy Mind Body Medicine Functional and Integrative Medicine Medical Law and Ethics</p>
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	<p>provisional registration provided by State AYUSH Boards.</p>		<p>Therapeutic Exercise and Massage Clinical Training III</p> <p>YEAR 5</p> <p>COMPULSORY INTERNSHIP PROGRAM</p> <p>Each successful trainee who completes the core subjects of the BTech Course will undergo clinical training with provisional registration provided by the Traditional Medicine Practice Council(TMPC) of the Ministry of Health, the caretaker body of CAM in Ghana based on the Ministerial directive used in 2010.</p> <p>There is also a professional qualifying Examination(PQE) to be conducted by the Council to</p>
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			<p>graduands known as the Ghana Naturopathic Physicians Qualifying Exams, a replica of the North American NPLEX model.</p>
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BNYS-Rajiv Gandhi Health
University
CTVET Bachelors-Nyarkotey
University College of Holistic
Medicine & Technology

YEAR 2 SEMESTER TWO

Microbiology & Parasitology II

Pharmacology

&Pharmacotherapeutics

Neuroscience

Naturopathic Assessment and

Diagnosis

Applied Nutrition

Clinical Naturopathy I

Entrepreneurship and Health

Administration

Discussion

Every country has a story to tell about naturopathic education. For instance, in Australia, before the standardization of naturopathy at the university, practitioners were acquiring their trade using self-taught and apprenticeship systems [12]. Today, Germany has also academized Naturopathic education in the German language with several changes [13,14]. Also, in the modern era, science has to be infused into Naturopathic education [15]. Additionally, when Naturopaths acquired knowledge, they have many tools to aid in health promotion in their various communities [16]. Hence, in this modern era, there is a need for evidence-based naturopathic education in the Ghanaian naturopathic community. We found that India has a role to play in the global naturopathic workforce. Hence, the need to compare the Ghanaian curriculum for benchmarking. We found that BNYS in India is structured in such a way that theory: practical is 60:40 ratio in every clinical subject right from their third and the fourth year of BNYS while the last year is devoted as 8 hours of a clinical internship program to be undergone after successful completion of the core subjects until fourth BNYS. A student is required to pass all subjects in a single attempt in the final year and clear all pending subjects until the fourth year which will enable the student to undergo an internship. To start an internship or fifth BNYS, every successful BNYS pass out is required to apply for provisional registration (something like a learner's license) with their state AYUSH board and after securing that provisional registration he/she could start his internship program which lasts for 365 days. After successful completion of the internship he/she could apply for his degree certificate with the university and also he/she would be eligible to apply for a state/ central registration/ practice license. Without a state/central registration/practice license no doctor is allowed to carry out any clinical practices.

In the case of Ghana, a student is supposed to achieve a particular module or subject before

moving on to the next subject or module. CBT delivers similar to the Indian 60:40; practical and theoretical. CBT is hands-on and practically oriented. Competencies [17] are neither curricula nor learning objectives. Competencies provide a framework [17] that cements performance outcomes around which a curriculum is developed and delivered and against which performance can be measured. Thus, a competency-based curriculum [17] is prepared around competencies essential for practice. It is also stuck in the empirically validated principle that students, when provided the right facilitation, can master their trade in the prescribed performance outcomes [17]. Thus CBT Curriculum organizes its activities in such a way that allows the development of both the generic and specific competencies declared in the graduate profile of each major. CBT[18] is one major teaching and learning approach that is believed to have a strong potential to increase skill levels, reduce the unemployment rate, increase productivity, and achieve international competitiveness. On the other hand, 'competence'(s) and 'competency'(cies) has been misunderstood. In bringing clarity to both [18] explained that 'Competency' is one able to use combined knowledge, skills, and attitudes to perform a task in a given trade or profession. On the other hand, competence means the ability to achieve 'up to standard' the key occupational tasks that characterize a profession such as a naturopathy. This means competence is normally role or job-specific while competencies can cover a wide range of different jobs. We, therefore, found that competency defines the necessary knowledge, skills, experience, and attributes to perform a specific function successfully whilst competence means the ability to successfully perform a given task at both individual and organizational levels using required skills, traits, characteristics, and behaviors. Hence, to achieve this, the Ghanaian Naturopathic students also undertake compulsory supervised clinical training in the fifth year after achieving all modules. Each successful trainee who completes the core subjects of the BTech Course will undergo

clinical training with provisional registration provided by the Traditional Medicine Practice Council(TMPC) of the Ministry of Health, the caretaker body of CAM in Ghana based on the Ministerial directive issued in 2010. The Bachelor's certificate is awarded by the Commission for TVET for the academic aspects.

Ghana has a professional qualifying Examination(PQE) to be conducted by the Council to graduands with the proposal name Ghana Naturopathic Physicians Licensing Exams(GNPLEX), a replica of the North American Naturopathic Physicians Licensing Examination(NPLEX) model. India is currently considering such a national Naturopathic Physicians examination in the National Commission of Yoga and Naturopathy bill if passed in Parliament.

The Indian clinical training is scheduled into monthly departmental areas. A candidate after passing the final B.N.Y.S. Medical Degree Examination shall undergo the compulsory rotatory internship of one-year duration, which shall consist of work/duty postings in the following sections/departments for the period specified against them. Below is the Indian structure:

Table 2:

S.No.	Department	Duration
1.	Philosophy of <i>Yoga</i> and Naturopathy	1 Month
2.	<i>Yoga</i> and Mind-Body Medicine	1 Month
3.	Pathology and Microbiology	1 Month
4.	Community Medicine	1 Month
5.	Energy Medicine	1 Month
6.	Manipulative Therapies, Physical Medicine & Rehabilitation	1 Month
7.	Fasting, Dietetics, Nutrition, & Medicinal Herbs	1 Month
8.	Diagnostic Methods	1 Month

9.	Obstetrics & Gynecology	1 Month
10.	Hydrotherapy & Mud Therapy	1 Month
11.	Naturopathic Medicine	1 Month
12.	Allied Health Sciences	1 Month
	TOTAL	12 Months

Credit: Bachelor of Naturopathy & Yogic Sciences (B.N.Y.S.) Five and half years' Undergraduate Medical Degree in Yoga and Naturopathy (2014) Rajiv Gandhi University of Health Sciences (RGUHS) Revised Ordinance Governing

The difference between the Indian and Ghanaian programs is that the first year is extended in the Indian BYNS program for additional 6 months. The Indian BYNS revised course contents contain the following subjects: Pharmacology, Forensic Medicine and Toxicology, Sanskrit, Principles of Yoga, Herbology, Clinical Naturopathy, Psychology, and Basic Psychiatry, Clinical Naturopathy, Research Methodology, and Recent Advances as well as medical ethics. The Ghanaian curriculum was developed and approved in 2021 by the Commission for Technical and Vocational Education and Training (CTVET).

Benchmarking is of importance in the profession of naturopathic education to aid standardization. For instance, education and regulation of the naturopathic profession have significant heterogeneity, even in the face of global calls for consistent regulation that recognizes naturopathy as a medical system. Standards are highest and consistency more apparent in countries with regulatory frameworks [10], this was why we had to benchmark the Ghanaian program as an emerging nation promoting modern naturopathy in the western African sub-region.

Conclusion

The Ghanaian Naturopathy and Indian Programs both have many similarities with biomedical and naturopathic knowledge. Unlike the Indian BYNS, the Ghanaian program is based on Competency-Based Education(CBT) which brings flexibility for students and practitioners to choose any subject to end award. Indian program is based on the traditional system of education where exams are conducted. In CBT, there are no arranged examinations. It is whether the student achieved or not achieved a particular module. We believe this Ghanaian naturopathic education model in Africa which is based on the CBT model will produce Naturopaths to meet international standards with several competencies in the naturopathic profession.

References

1. Guidelines for Registration of Naturopathy Practitioners and Accreditation of NaturopathyInstitutions. <https://cdn.ayush.gov.in/wp-content/uploads/2021/03/Guidelines123.pdf>
2. Raphael N. Obu and LawrencaAggrey-Bluwey(20220 With us or against us? A critical appraisal of the draft traditional and alternative medicine legislation in Ghana. In press
3. Definition of Naturopathy(2021). <https://main.ayush.gov.in/ayush->

systems/naturopathy/definitionnaturopathy/#:~:text=Naturopathy%20is%20a%20distinct%20primary,healthy%20diet%2C%20and%20so%20on.

4. Naturopathy. <https://main.ayush.gov.in/ayush-systems/naturopathy/>
5. Nyarkotey University College of Holistic Medicine & Technology(NUCHMT). To be accessed at Nyarkotey.edu.gh
6. Rajiv Gandhi Health University. http://www.rguhs.ac.in/courses_rguhs.html
7. National Institute of Naturopathy, Pune. <https://main.ayush.gov.in/ayush-systems/naturopathy/national-institute-of-naturopathy-pune-2/>
8. Raphael NyarkoteyObu and LawrenciAggrey-Bluwey(2022)African Naturopathic Education: Ghana's Model using Competency-Based Curriculum. In press
9. Glenn A. Bowen(2009) Document Analysis as a Qualitative Research Method. | Qualitative Research Journal, vol. 9, no. 2,
10. Dunn JM, Steel AE, Adams J, Lloyd I, De Groot N, Hausser T, Wardle J. Characteristics of global naturopathic education, regulation, and practice frameworks: results from an international survey. BMC Complement Med Ther. 2021 Feb 18;21(1):67. doi: 10.1186/s12906-021-03217-1. PMID: 33602181; PMCID: PMC7893718.
11. Ravi Chinta, MansurehKebritchi,Janelle Ellias(2015)A conceptual framework for evaluating highereducation institutions. International Journal of Educational Management 30(6):989-1002
12. Evans S. The story of naturopathic education in Australia. Complement Ther Med. 2000 Dec;8(4):234-40. doi: 10.1054/ctim.2000.0403. PMID: 11098198.
13. Stange R. Die Akademisierung von Naturheilkunde und KomplementärmedizinimdeutschsprachigenRaum [Academization of naturopathy and complementary medicine in the German language area]. ForschKomplementmed.

2013;20(1):58-64. German. doi: 10.1159/000347157. Epub 2013 Feb 25. PMID: 23727763.

14. Kusak G, Gülich M, Lay W, Morfeld M, Schwarzkopf SR, Mau W. Entwicklung der LehreinQuerschnittsbereich "Rehabilitation, PhysikalischeMedizin, Naturheilverfahren" anden medizinischenFakultäten 2004-2006/07 [Changes of teaching in the interdisciplinary subject "rehabilitation, physical medicine, naturopathic treatment" in the German medical faculties 2004 to 2006/07]. Rehabilitation (Stuttg). 2008 Feb;47(1):2-7. German. doi: 10.1055/s-2007-1004602. PMID: 18247265.

15. Steel A, Peng W, Gray A, Adams J. The Role and Influence of Traditional and Scientific Knowledge in Naturopathic Education: A Qualitative Study. J Altern Complement Med. 2019 Feb;25(2):196-201. doi: 10.1089/acm.2018.0293. Epub 2018 Nov 7. PMID: 30403492.

16. Steel A, Lloyd I. Community education and health promotion activities of naturopathic practitioners: results of an international cross-sectional survey. BMC Complement Med Ther. 2021 Nov 30;21(1):293. doi: 10.1186/s12906-021-03467-z. PMID: 34847899; PMCID: PMC8630897.

17. JeonghyunKim(2015) J. of Education for Library and Information Science, Vol. 56, No. 4—(Fall) October ISSN: 0748-5786 Association for Library and Information Science Education doi:10.12783/issn.2328-2967/56/4/2

18. Dr. Peter Boahin(2018)Competency-Based Curriculum: A Framework For Bridging The Gap In Teaching, Assessment And The World Of Work. European Centre for Research Training and Development UK.Vol.4, No.3, pp.24-37,

