

The Four Immeasurables in the *Bodhisattvabhūmi* and
Mahāyānasūtrālamkāra and
their Implementation in a Measuring Scale for a Study of Brain Imaging

Huimin Bhikshu

Professor, Dharma Drum Institute of Liberal Arts
Emeritus Professor, Taipei National University of the Arts

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Abstract

Firstly, this paper discusses the connotation of the Four Immeasurables (*catvāry apramāṇāni*) in the *Bodhisattvabhūmi* and *Mahāyānasūtrālaṅkāra*. The conclusion is as follows: These two texts approach the four immeasurable states of mind from two different points of view, and based on the three categories of sentient beings, the immeasurables of kindness, compassion, and empathic joy arise accordingly when one is faced with sentient beings in states of neither-pain-nor-pleasure (kindness), pain (compassion), and pleasure (empathic joy) respectively. On the other hand, delusion, hatred, and greed can also be aroused when one is faced with these three kinds of states (neither-pain-nor-pleasure, pain, and pleasure). Consequently, bodhisattvas generate a strong intention (*adhyāśaya*) — the mind state of equanimity, the fourth immeasurable — to guide these three categories of sentient beings to abandon defilements. This interpretation goes beyond the traditional definition of the Four Immeasurables in earlier Buddhist thought.

Secondly, based on the aforementioned conclusion, in order to develop a measuring scale and study the brain imaging measurements of fMRI/DIT, we surveyed some relevant papers, and we found that there are five questions or topics which need to be discussed between Buddhists and researchers in psychological studies and neurosciences in the future.

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Keywords

Four Immeasurables; three categories of sentient beings; measuring scale; functional magnetic resonance imaging (fMRI)

1. Foreword

In January 1898, S. Lévi the French scholar went to Nepal in search for Sanskrit manuscripts of Buddhist texts, and soon he found one for the *Mahāyāna-sūtrālaṃkāra* (translated into Chinese as 大乘莊嚴經論 *Dasheng zhuangyanjing lun*, or 莊嚴經論 *Zhuangyanjing lun* in short; abbreviated as *MSA* for the Sanskrit original). In 1907, he published the emended version of the manuscript entitled *Asaṅga, Mahāyāna-Sūtrālaṃkāra, Exposé de la Doctrine du Grand Véhicule selon le Système Yogācāra*, Tome I (Paris),¹ followed in 1911 by his French translation and a correction to the former Sanskrit version. This started a new phase in the study of the Sanskrit *MSA*.

Referring to the chapter titles of the *MSA* and the Chinese translation, it has been widely known by the academic community² that the chapter structure of the *MSA* is related to that of the *Bodhisattvabhūmi* (abbr. as *BoBh* hereafter) in the *Maulī-bhūmi* of the Main Stages Division of the *Yogācārabhūmi-śāstra* (YBh; 瑜伽師地論 *Yuqie shidi lun*, or *Yuqie lun* in short). Chronologically, the *BoBh* also comes before the *MSA*. In spite of this relationship, the writing of the *MSA* is not intended to paraphrase the *BoBh* word by word, but uses instead other Mahāyāna texts³ to interpret its contents, using various metaphorical and other literary expressions, and expound the Mahāyāna Buddhism from the point of view of the Yogācāra school.

In the *MSA*, the text related to the subject of the four “immeasurables (apramāṇa)” of “kindness, compassion, empathic joy, and equanimity” is included in the third portion of chapter 17 *pūja-sevā-apramāṇa* (worship [of Buddhas and masters], service [to teachers and reverent

* Date of submission: 2015/01/06; date of review: 2015/03/26.

¹ Lévi 1907 AVANT-PROPOS p. I.

² Lévi 1911 Introduction, pp. 10-11; Ui 1958 etc.

³ E.g. Lévi 1911 Introduction, pp. 14-15.

friends], immeasurables),⁴ which contains 66 verses in total and has the same title as chapter 16 of the *BoBh*.

Applying the textual organization in the *Sūtrālamkārapīṇḍārtha*⁵ made by Indian treaty master Jñānaśrī, the third portion “immeasurables” of chapter 17 *pūja-sevā-apramāṇa* (worship [of Buddhas and masters], service [to teachers and reverent friends], immeasurables), verses 17-65, can be further divided into two parts:

Part I: Verses 17-28; the description of the *four* “immeasurable” *minds* (*apramāṇa-vibhāga*), which accounts for about 25% of the entire chapter;

Part II: Verses 29-64; the discussion of compassion (*karunā-vibhāga*), which accounts for about 75%.

For the investigation on the definition of the Four Immeasurables, this research will focus on the 18th verse of Part I: the description of the Four Immeasurable Minds (*apramāṇa-vibhāga*), and discuss in detail the similarities and differences in the definitions of the Four Immeasurables between the *BoBh* and the *MSA*, in order to provide the design of “the measuring scale of the Four Immeasurables” with data information for a comparative study of brain imaging measurements.

2. Definitions for “Kindness, Compassion, Empathic Joy and Equanimity” in the *BoBh* and the *MSA*

The standard meditative instruction for the Immeasurables in the

⁴ Nagasaki 1999, 48 n. 8; Lévi, pp.121.1.10-122.1.5, D.213a-213b4, P.233b6-234b2, 龍大(Ryukoku University) A 本 110b2-111a5, 龍大(Ryukoku University) B 本 120a6-121a1.

⁵ mDo sde rgyan gyi don bsdu pa (*Sūtrālamkārapīṇḍārtha*), De. No. 4031; Pek. No. 5533. Sanskrit fragments (fols. 1-6) (The Catalogue of Sanskrit Palm-leaf Manuscripts Preserved in the Library of Nationalities), 1985, No. 16. (Cf. Hu-von Hinüber 2006, 300)

earliest extant Buddhist texts is an all-pervasive radiation in all spatial directions, sequentially, of each Immeasurable:

Here a bhikkhu abides pervading one quarter with a mind imbued by loving-kindness, likewise the second, likewise the third, likewise the fourth; so above, below, around, and everywhere, and to all as to himself, he abides pervading the all-encompassing world with a mind imbued with loving kindness, abundant, exalted, immeasurable, without hostility and without ill will. When the deliverance of mind by loving kindness is developed in this way, no limiting action remains there, none persists there. [The same is repeated for the other Immeasurables].⁶

Next, later commentaries, treatises and meditation manuals instruct on developing a perception of benevolence and of the other Immeasurables on the basis of a given object (a friend, a stranger, an enemy) by directing it to single individuals or to group(s) of individuals.⁷

For example, in the Yogācāra school, the main points for practicing “kindness” as a meditative object in the text of the *Śrāvakabhūmi* is to explain the term “with a mind imbued by loving-kindness” (mettasahagatena) to maintain the intention of equally giving benefits to relatives, enemies, and the unrelated stranger, so as to generate the determination (excellent understanding) of meditative concentrations with inferior, middling and superior happy states respectively.⁸

In the above context, the “intention of (giving) benefits” is considered a specific term used in the practice of the “mind-of-kindness” in the Yogācāra school.

⁶ *Majjhima-nikāya* 99, transl. Bhikkhu Ñānamoli and Bhikkhu Bodhi, *The Middle Length Discourses of the Buddha: A Translation of the Majjhima Nikāya*, Boston: Wisdom Publications, 2001, pp. 816f.

⁷ E.g., *Visuddhimagga* IX, transl. Bhikkhu Ñānamoli, *Visuddhimagga: Path of Purification*, Seattle: BPS Pariyatti, 1999 [1st ed.: Kandy: Buddhist Publication Society, 1975], pp. 288ff.

⁸ “tatra yat tāvad āha maitrīśahagatena cītenety anena triṣu pakṣeṣu mitra-pakṣe, amitra-pakṣe, udāsīna-pakṣe hitādhyāśaya ākhyātaḥ” (T30, p. 429c8-10; ŚrBh 208, 6-8; Tp 98b4ff.; Td 81a6ff.)

As stated above, judging by its chapter structure and contents, the *MSA* developed from the *BoBh* of the Main Stages Division *Maulī-bhūmi* of the *Yogācārabhūmi-śāstra* or *Yuqie lun* in Chinese. In the *BoBh*, Chapter 16 *offering, close to, immeasurables* discusses the four immeasurable mind states mainly in four parts: (1) enumerates “the Four Immeasurables” as unique to Mahayana Buddhism towards three kinds of meditation objects (*ālambana*),⁹ (2) gives an overview of the three categories of sentient beings, (3) exemplifies “immeasurable kindness” towards the three kinds of meditation objects, (4) in the same way, illustrates the differences towards the three meditation objects in terms of “compassion, empathic joy, and equanimity”. The following passages describe the four parts in detail.

2.1. “Kindness, Compassion, Empathic Joy and Equanimity” towards Three Kinds of Meditation Objects as Stated in the *BoBh*

(1) An overview of the three kinds, as broadly classified, towards which bodhisattvas meditate on the Four Immeasurables:

What are the objects towards which bodhisattvas meditate on the immeasurable kindness, compassion, empathic joy and equanimity? The answer: bodhisattvas meditate on the Four Immeasurables with regard to three kinds of objects. First, the immeasurables towards the sentient beings as meditation objects; second, the immeasurables towards the dharma as meditation objects; third, the immeasurables without meditation objects.¹⁰

To begin with, the *BoBh* discusses meditation on the “four immeasurable minds” towards three kinds of objects which are unique

⁹ Lamotte 1976, 1251 II. 32-34; Wakahara 1995, 93 II. 13-14; Nagasaki 1999, 42.

¹⁰ T30, p. 535c7-9; *kathaṃ ca bodhisattvaḥ catvāry apramāṇāni bhāvayati.maitrīṃ karuṇāṃ muditāṃ upekṣāṃ. iha bodhisattvaḥsamāsatas trividhāni catvāry apramāṇāni bhāvayati. sattv'ālambanāni dharm'ālambanāny4) anālambanāni5) ca.* (Bo-SW p.241, 15-18).

to Mahayana Buddhism.¹¹ Historical research suggest that the source of the three kinds of objects for meditation on the Four Immeasurables originate from the *Sutra of Akṣayamati Bodhisattva*.¹² In chapter 12-3 *Akṣayamati Bodhisattva*, fascicle 29 of the *Great Collection Sutra*, the text reads, “Śāriputra, those who practice for kindness may cross over various streams, where kindness is directed towards living beings, as well as the dharma, and also towards no objects. Taking the living beings as objects, the initial determination to seek enlightenment; taking the dharma, already in practice; taking no objects, attainment of clear cognition of dharma. Śāriputra, this means bodhisattvas practice on great kindness with no limitation.”¹³

Then, what does it mean to “clear cognition of dharma”? Thought without the Sanskrit text of the *Great Collection Sutra, Akṣayamati Bodhisattva*, we can nevertheless refer to the *Śikṣā-samuccaya* (p. 212), and the Chinese translation of fascicle 14, chapter 12 *Controlling the Mind*, which reads as, “the *Aryākṣaya-mati-sūtra* says: the newly-determined (prathamacittotpādika) bodhisattvas practice kindness towards sentient beings as meditation object; bodhisattvas already in practice (caryāpratipanna) act out kindness with the dharma as meditation object; bodhisattvas who have obtained the clear cognition of the unproduced nature of all existence of dharma (anutpattika-dharma-kṣānti) practice kindness with no need of meditation object.”¹⁴ Therefore it is evident that “the clear cognition of dharma” mentioned in the chapter *Akṣayamati Bodhisattva* of Chinese *Great Collection Sutra* refers to “the cognition of the unproduced nature of all existence”. It is also obvious that the chapter *Akṣayamati Bodhisattva* relates the three kinds of meditative objects

¹¹ Lamotte 1976, 1251 II. 32-34; Wakahara 1995, 93 II. 13-14; Nagasaki 1999, 42.

¹² Nagao 2009, n. 2, 126-127.

¹³ T13, no. 397, p. 200a14-18.

¹⁴ T32, no. 1636, p. 118a12-14. “satvārambaṇā maitrī prathamacittotpādikānām bodhisatvānām / dharmārambaṇā caryāpratipannānām bodhisatvānām / anārambaṇā maitrī anutpattikadharmakṣāntipratilabdhanām bodhisatvānām iti.” (Śikṣ p.212), Nagao 2009, n. 2, 127.

for acting out the Four Immeasurables to the three stages at which bodhisattvas stand along the path of their practice. The relationship is illustrated as follows:

1. Living beings as object = initial determination → 2. Dharma as object = already in practice → 3. No object = clear cognition of dharma = cognition of the unproduced nature of all existence.

(2) An overview of the three categories of sentient beings:

“The bodhisattvas, among all the three categories of sentient beings, define them to be in the states of neither-pain-nor-pleasure, pain, and pleasure, respectively.”¹⁵

(3) Description of the three meditative objects in terms of “the immeasurable kindness”¹⁶:

(A) Towards those who seek for happiness at the first, (bodhisattvas) generate the superior intent of giving happiness, universally towards the ten directions, dwelling steadfast in the determination possessed by delusion-free sentient beings (sattvādhimokṣa), to cultivate the mind to have kindness, and that we should know is called kindness towards sentient beings.¹⁷

(B) If the bodhisattvas dwell in the superior intent of dharma-only (dharma-mātra-saṃjñī), correctly contemplating on the truth of dharma-only (dharma-mātre) and nominal sentient beings (sattvopacāra), to cultivate the mind to have kindness, then that we should know is called kindness conditioned on dharma.¹⁸

(C) If the bodhisattvas furthermore, concerning various dharmas, stay

¹⁵ T30, p. 535c9-10.

¹⁶ T30, p. 535c10-16.

¹⁷ “sattvān sukha-kāmān adhikṛtya sukhopasaṃhārādhyāśaya-gatena maitreṇacetasā daśa-dīśaḥ spharitvā sattvādhimokṣeṇa viharati. iyam asya sattv’ālaṃbanā maitrī veditavyā.”(Bo-SW p. 241, 20-23)

¹⁸ “yat punar dharma-mātra-saṃjñī (1dharma-mātre1) sattvopacāram āśayataḥ saṃpaśyaṃs (2tām eva maitrīm bhāvayati.2) iyam asya dharm’ālaṃbaka-maitrī veditavyā.”(Bo-SW p. 241, 23-242, 03)

away from discrimination (*avikalpaya*) to cultivate the mind to have kindness, then that we should know that it is called kindness without object (condition).¹⁹

(4) Likewise the meditative objects of “compassion, empathic joy, and equanimity”.

As the differences when performing kindness towards sentient beings, *dharma*, and no objects respectively, so are those for compassion, empathic joy and equanimity. If the *bodhisattvas*, towards those who have pain, generate the superior intent of removing their pain, universally conditioned on all in the ten directions to cultivate the mind to have compassion, then that is called compassion (*karuṇa*).

If the *bodhisattvas*, towards those who feel happy, generate the superior intent of rejoicing, universally conditioned on all in the ten directions to cultivate the mind to have empathy, then that is called empathic joy (*muditā*).

If the *bodhisattvas*, towards those three kinds of sentient beings in the states of neither-pain-nor-pleasure, pain, and pleasure as such, subsequently generate the superior intent of getting them away from the defilements of delusion, hatred, and greed, pervasively conditioned on all in the ten directions to cultivate the mind with equanimity, then that is called equanimity (*upekṣā*).²⁰

From the above-stated sections, including (2) an overview of the three categories of sentient beings, (3) a description of the three meditative objects in terms of “the immeasurable kindness”, and (4) a description of the three meditative objects in terms of “compassion, empathic joy, and equanimity”, we know that the Four Immeasurables of “kindness,

¹⁹ “yat punar dharmān apy avikalpayams tām eva maitrīm bhāvayati. iyaṃ asyānālambanā3) maitrī veditavyā”(Bo-SW p. 242, 03-05).《瑜伽論》卷 47〈3 增上意樂品〉接著有舉出如下 15 種增上意樂：「當知略說有十五種。何等十五？一、最上意樂。二、遮止意樂。三、波羅蜜多意樂。四、真實義意樂。五、威力意樂。六、利益意樂。七、安樂意樂。八、解脫意樂。九、堅固意樂。十、無虛妄意樂。十一、不清淨意樂。十二、清淨意樂。十三、善清淨意樂。十四、應調伏意樂。十五、俱生意樂。」(T30, p. 552a12-18)

²⁰ T30, p. 535c17-24.

compassion, empathic joy and equanimity” are related to the superior intent (*adhyāśaya*) generated for the “three categories of sentient beings (in the states of neither-pain-nor-pleasure, pain, and pleasure, respectively)” in two aspects:²¹

Aspect A: The mind states of “kindness, compassion, and empathic joy” can be defined in relation to the different “superior intents” of “giving happiness, removing pain, and rejoicing” as corresponding to “the three categories of sentient beings” (in the situations of neither-pain-nor-pleasure, pain and pleasure),²² as shown in the following table (Table 1):

All Sentient Beings in Three Categories		Superior Intents	Immeasurable Minds
1	sentient beings having neither-pain-nor-pleasure	←giving happiness	= kindness
2	sentient beings having pain	←removing pain	= compassion
3	sentient beings having pleasure	←rejoicing	= empathic joy

Table 1. Three Categories of Sentient Beings vs. Kindness, Compassion, and Empathic Joy, from the *BoBh*

As for “superior intent”, according to the *BoBh*, in fascicle 47, chapter 3 *Superior Intent*, it reads, “It should be known that about this, pure faith is first, discernment is first, of all zealous applications of the dharmas, to determine by realization, and this is called superior intent

²¹ In *BoBh*, we also can find the statement of this two similar group, e.g., 〈 16 供養親近無量品〉：「又諸菩薩三種無量，應知安樂意樂所攝，調慈、悲、喜。一種無量、應知利益意樂所攝，是謂為捨。」(T30, p. 535c28 - 536; Bo-SW p. 242, 20-24)

²² In *ŚrBh*, we also can find the similar passage, e.g., “若於無苦 (*aduḥkha*)、無樂 (*asukhita*) 親怨中品有情，平等欲與其樂 (*sukha-kāma*)，當知是慈 (*maitrī*)。若於有苦 (*duḥkhita*)、或於有樂 (*sukhita*) 親怨中品有情，平等欲拔其苦，欲慶其樂，當知是悲 (*karuṇa*) 是喜 (*muditā*)。有苦 (*duḥkhita*) 有情是悲所緣，有樂有情是喜所緣，是名慈愍所緣。” (T30, p. 429c20-4; ŚrBh 209, 9-14; Tp 99a3-5; Td 81b4-6)

of bodhisattvas.”²³ That is to say, led by pure faith and discernment (wisdom), the zealous application of (adherence to) the Dharma, the correct understanding, and determination is to be called the “superior intent”. Thus we know zealous adherence (adhimokṣa) is one kind of superior intent (adhyāśaya).²⁴

Aspect B: Next follows the explanation of the mind state of “equanimity”, when “superior intents” are generated to let the “three categories of sentient beings” (in the situations of neither-pain-nor-pleasure, pain, and pleasure, respectively) subsequently “depart from defilements of delusion, hatred, and greed”. In other words, the “three categories (neither-pain-nor-pleasure, pain, and pleasure) of sentient beings” are liable to give rise to three kinds of defilements (afflictions), namely delusion, hatred, and greed, respectively, that is:

a neither-painful-nor-pleasant situation is liable to have “delusion” (affliction)

a painful situation is liable to have “hatred” (affliction)

a pleasant situation is liable to have “greed” (affliction)

Therefore, bodhisattvas generate their superior intents to lead these three categories of sentient beings to “depart from defilements of delusion, hatred, and greed”. This explanation of the mind state of “equanimity” is different from the traditional definition of “abandoning concerns such as thinking ‘May they be free from enmity’ and having recourse to neutrality”,²⁵ as shown in the table

²³ T30, p. 552a10-1, “tatra śraddhā-pūrvō dharmā-vicaya-pūrvakā ca buddha-dharmāeṣu yo ’dhimosoh pratyavagamo niścayo bodhisattvasya so ’dhyāśaya ity ucyate.” Bobh(W) 313, 4-6.

²⁴ “adhimokṣa (= Pali adhimokkha), = adhimukti, zealous application : *Mvy* 1929; *Dharmas* 30; śūnyatādhimokṣa *Bbh* 40. 5, zealous adherence to (the theory of) nullity; with loc. *Bbh* 282. 7 (arthe); ...part of definition of adhyāśaya, q v.” (BHSD 15a). As for “adhimokṣa” and “adhimukti” (Pa. adhimutti), Sakurabe 1975, 37-8 considered: “adhimutti (-tta)” have the same meaning with “āśaya”, “anusaya” or “ajjhāśaya”.

²⁵ E.g., *Vism*(9.92) “Averā hontu ti ādibyaṅgāpārahānena majjhatabhāvūpagamanena ca upekkhātī ti *upekkhā*”, *Vism*(Ñ): it looks on at (*upekkhati*), abandoning such

(Table 2) below:

All Sentient Beings in Three Categories		Superior Intents	Immeasurable Minds
1	sentient beings having neither-pain-nor-pleasure	←to depart from delusion	= equanimity
2	sentient beings having pain	←to depart from hatred	
3	sentient beings having pleasure	←to depart from greed	

Table 2: “Three Categories of Sentient Beings” and “Equanimity” in the *BoBh*

2.2 “Kindness, Compassion, Empathic Joy and Equanimity” towards Three Kinds of Meditation Objects as Stated in the *MSA*

The discussion, as in aspects A and B, on “kindness, compassion, empathic joy and equanimity” in relation to different “superior intents” towards “three categories of sentient (living) beings” is also seen in the *MSA*, chapter 17, the first half of verse 18, as well as the accompanying prosaic commentary:

saukhyārthini duḥkhārte sukhite kliṣṭe ca te pravartante |²⁶ (Those of the wise arise among the pleasure-seekers, sufferers, contented, and defiled.)

satvāmbanāḥ sukhārthini yāvat kliṣṭe satva-nikāye pravartante | tathā hi mairī satveṣu sukha-saṃyogākārā | karuṇā duḥkha-viyogākārā

interestedness as thinking “May they be free from enmity” and having recourse to neutrality, thus it is equanimity (*upekkhā*).

²⁶ Lévi 1907, 121, l.18; Nagao 2009, 128. 《大乘莊嚴經論》卷 9〈20 梵住品〉：「偈曰：樂苦喜煩惱，如是眾生緣 (T31, p. 635c26) ……釋曰：(1)四種眾生聚是眾生緣。一、求樂眾生聚，二、有苦眾生聚，三、有喜眾生聚，四、煩惱眾生聚。慈者，於求樂眾生聚，起與樂行 (ākāra)；悲者，於有苦眾生聚，起拔苦行；喜者，於有喜眾生聚，起不離行；捨者，於諸受起煩惱眾生聚，起令離行，是名眾生緣。」 (T31, p. 635c28 - 636a4)

|muditā sukhāviyogākārā | upekṣā tāsū²⁷ vedanāsu teṣāṃ satvānāṃ niḥsaṃkleśatopasaṃhārākārā |²⁸ (The objects come to be among living beings, embracing from the pleasure-seekers, even to the defiled. Just as kindness is happiness-associated mental state (ākāra; activity, appearance) towards living beings, compassion is a state free from pain, empathic joy is a state not separated from happiness, and equanimity is the state able to lead living beings given to those feelings (vedanā, i.e. pain and pleasure) to the attainment of no-affliction-in-nature (niḥsaṃkleśatopasaṃhāra).)

Therefore, in the same way as tables 2 and 3, concerning the “three categories of living beings” and “kindness, compassion, empathic joy” and “equanimity”, we may generate tables 3 and 4 for the *MSA*:

	Living beings	Mental States (ākāra)	Immeasurable minds
1	Pleasure-seekers	←State associated with pleasure	= Kindness
2	Those enduring pain	←State to be away from pain	= Compassion
3	Those enjoying happiness	←State not to be away from pleasure	= Empathic joy

Table 3: “Three Categories of Living beings” and “Kindness, Compassion, Empathic Joy” in the *MSA*

	Among those given to the feelings (pain, pleasure)		Mental States (ākāra)	Immeasurable minds
1	Pleasure-seekers	} The Defiled	←Able to bring about living beings’ no-affliction nature	= Equanimity
2	Pain-sufferers			
3	Those contented			

Table 4: “Three Categories of Living Beings” and “Equanimity” in the *MSA*

²⁷ Nagao 2009, 128. Ed.: upekṣāsu, *read* upekṣā tāsū (A., B., Ns., Nc.). Nohnin 2013, 60. upekṣā tāsū (Ns, Nc, A, B) : upekṣāsu (Le).

²⁸ Nagao 2009, 128. Ed.: niḥkleśato-, *read* niḥsaṃkleśato- (A., B., Ns., Nc., Tib.). Nohnin 2013, 60. niḥsaṃkleśato⁰ (Ns, Nc, A, B, Tib): niḥkleśato⁰ (Le).

In comparison to the description in the *BoBh* “towards those three kinds of sentient beings in the states of neither-pain-nor-pleasure, pain, and pleasure, respectively” for immeasurable “equanimity” to arise, “towards those given to those feelings” is used in the *MSA*. Although, unlike the *BoBh* which explicitly explained that “superior intents” are generated subsequently to “lead away from defilements of delusion, hatred, and greed”, the *MSA* only mentions the mental state that is “able to bring about living beings’ no-affliction-nature”, it is clearly expressed that bodhisattvas intend to lead living beings to stay away from afflictions rather than for themselves to get away from afflictions. Therefore, we may combine table 3: “Three Categories of Sentient Beings” and “Equanimity” in the *BoBh* and table 5: “Three Categories of Living Beings” and “Equanimity” in the *MSA* to generate table 5 as follows:

All Sentient Beings in Three Categories	The Defiled	Superior Intents (Mental states)	Immeasurable Minds
1 Neither-pain-nor-pleasure	apt to produce “delusion”	← Superior intent (mental state) to lead living beings away from delusion	= Equanimity
2 in painful situation	apt to produce “hatred”	← Superior intent (mental state) to lead living beings away from hatred	
3 in pleasant situation	apt to produce “greed”	← Superior intent (mental state) to lead living beings away from greed	

Table 5: “Three Categories of Living Beings” and “Equanimity” in the *BoBh* and *MSA*

Therefore, from our discussion of the *BoBh* and *MSA*, it is clear that bodhisattvas’ immeasurable “equanimity” is aimed to “those three kinds of sentient beings in the states of neither-pain-nor-pleasure, pain, and pleasure, respectively” (those given to the various feelings), the defiled who are apt to produce “delusion, hatred, and greed”. For this reason, bodhisattvas generated “superior intents” (mental activities) to lead those sentient beings “away from defilements of delusion, hatred,

and greed”, which is worthy of our attention.

Accordingly, the Four Immeasurables of “kindness, compassion, empathic joy, and equanimity” may be defined, in relation to the different “superior intents” (mental activities) towards the “three categories of sentient beings” (neither-pain-nor-pleasure, pain, and pleasure), from two aspects A and B.

Viewed from aspect A, when responding according to “the three categories of sentient beings (in the states of neither-pain-nor-pleasure, pain, and pleasure)”, “kindness, compassion, and empathic joy” are generated subsequently.

From aspect B, to respond to the three categories of sentient beings (in the states of neither-pain-nor-pleasure, pain, and pleasure), who tend to produce three kinds (greed, hatred, and delusion) of defilements (afflictions) respectively, the mind state of immeasurable equanimity is generated to lead those sentient beings to abandon defilements. This is different from the traditional definition of equanimity as “abandoning such concerns as thinking ‘May they be free from enmity’ and having recourse to the neutral.”

3. The Conceptual and Operational Definition of “Kindness, Compassion, Empathic Joy and Equanimity”

Secondly, based on the previous conclusion, we may try to construct a new measuring scale for the study of brain imaging measurements made by fMRI (functional magnetic resonance imaging) and DTI (Diffusion Tensor Imaging). This measuring scale is being designed in the context of an integrated project developed at Dharma Drum Institute of Liberal Arts in collaboration with other universities in Taiwan, entitled “Imaging Benevolence and Compassion: An Experiment with Meditation in Religious Education”.

In order to develop the measuring scale and study brain imaging measurements made by fMRI/DIT, we need to investigate the conceptual and operational definition for “Kindness, Compassion,

Empathic Joy and Equanimity”. We surveyed the following papers:

- Neff, K.D. 2003. “Development and Validation of a Scale to Measure Self-Compassion”. *Self and Identity* 2: 223-250.
- Sprecher, S. and B. Fehr. 2005. “Compassionate love for close others and humanity”. *Journal of Social and Personal Relationships* 22: 629-651.
- Kraus, Sue and Sharon Sears. 2009. “Measuring the Immeasurables: Development and Initial Validation of the Self-Other Four Immeasurables (SOFI) Scale Based on Buddhist Teachings on Loving Kindness, Compassion, Joy, and Equanimity”. *Soc Indic Res*, 92: 169-181.
- Pommier, E.A. 2011. “The Compassion Scale”. *Dissertation Abstracts International Section A: Humanities and Social Sciences* 72: 1174.
- Martins, D., N.A. Nicholas, M. Shaheen, L. Jones, and K. Norris. 2013. “The development and evaluation of a compassion scale”. *Journal of Health Care for the Poor and Underserved* 24(3): 1235-246.

According to Neff 2003, this article defines the construct of self-compassion and describes the development of the Self-Compassion Scale. It said: “Self-compassion entails being (1) kind and understanding toward oneself in instances of pain or failure rather than being harshly (2) self-critical; perceiving one’s experiences as part of the (3) larger human experience rather than seeing them as (4) isolating; and holding painful thoughts and feelings in (5) mindful awareness rather than (6) over-identifying with them.”

In Neff’s study, Evidence for the validity and reliability of the scale is presented in a series of studies. Results indicate that self-compassion is significantly correlated with positive mental health outcomes such as reduced depression and anxiety and greater life satisfaction. Evidence is also provided for the discriminant validity of the scale, in particular with regard to self-esteem measurements.

But, during my survey, I found the following questions that we should

notice and study more from both a Buddhist and psychological studies perspective in the future.

Q 1. Why does “compassion” require “mindfulness”?

Neff 2003 says: “At the same time, self-compassion requires that individuals do not avoid or repress their painful feelings, so that they are able to acknowledge and feel compassion for their experience in the first place. Thus, a compassionate attitude toward oneself requires the equilibrated mental perspective known as mindfulness (Bennett-Goleman 2001; Epstein 1995; Gunaratana 1993; Hanh 1976; Kabat-Zinn, 1994; Langer 1989; Nisker 1998; Rosenberg 1999). Mindfulness is a balanced state of awareness that avoids the extremes of over-identification and disassociation with experience and entails the clear seeing and acceptance of mental and emotional phenomena as it arises.”

Pommier 2010 also said: “Neff’s proposal is drawn from Buddhist principles that suggest that compassion also includes elements of common humanity and mindfulness. This alternate conceptualization consistent with Buddhist principles will form the theoretical basis for the compassion scale that will be the focus of the present study.”

But, according to the Buddhist texts that we studied above listed in the table 6 (we take “kindness (maitrī)” as an example), the definition of the Four Immeasurables (kindness, compassion, and empathic joy, Equanimity) in the earliest extant Buddhist texts (e.g. *Āgama*), *Śrāvakabhūmi* and *Bodhisattvabhūmi*, does not provide a description of “mindfulness”

<i>Āgama</i>	<i>śrāvakabhūmi</i>	<i>Bodhisattvabhūmi</i>
maitrī-sahagetenā cittena	to maintain the intention (adhyāśaya) of equally giving benefits to relatives, enemies, and the unrelated stranger	Towards those who seek for happiness at the first, (bodhisattavas) generate the superior intent of giving happiness

avaireṇa- [*] asapatnena- avyābādheneā	three characteristics of intention (adhyāśaya) of equally giving benefits	
vipulena mahadgatena apramāṇena	to induce the inferior, middling and superior happy states	universally towards the ten directions
adhimucya sphāritvopasāmpadya vihārati	to generate the determination (adhimokṣa) of meditative concentrations	dwelling steadfast in the determination possessed by delusion-free sentient beings (sattvādhimokṣa)

Table 6: the definition of the Four Immeasurables (kindness, compassion, and empathic joy, Equanimity) in Āgama, Śrāvakabhūmi and Bodhisattvabhūmi

Therefore, we need to further study the relationship between “compassion” and “mindfulness” from both a Buddhist and psychological studies perspective in the future.

Therefore, we need to further study the identity of the Four Immeasurables (kindness, compassion, and empathic joy, Equanimity) from both a Buddhist and psychological studies perspective in the future. Can we prove the idea (only two — compassion and appreciative joy — are included as cetasikas under the heading of the illimitables) of the *Abhidhammattha Sangaha (A Comprehensive Manual of Abhidhamma)* by the using the measuring scale or neuroscience?

Q 2. Are Only two — compassion and appreciative joy — included as mental factors (cetasikas) under the heading of the Immeasurables?

Pommier 2010 mentioned: “Neff’s conceptualization is somewhat different from the proposal of Sprecher & Fehr. Although both conceptualizations are focused on kindness and caring directed toward the suffering of others,Unlike the Sprecher & Fehr conceptualization that suggests that the term compassion alone lacks transcendent qualities, in Buddhism compassion is a key, stand-alone concept, Sprecher & Fehr decided to name the scale compassionate love due to the work of Underwood 2002, 78 who

suggests that compassion alone leaves out ‘some of the emotional and transcendent components’ that love would include.”

If we refer to the classification of Four Immeasurables in *Abhidhammattha Sangaha (A Comprehensive Manual of Abhidhamma)*, the section (§7) Four illimitables (immeasurables, appamaññā) said: “Although four illimitables (immeasurables) are recognized as ideal attitudes towards beings, only two—compassion and appreciative joy—are included as cetasikas (mental factors) under the heading of the illimitables (immeasurables). This is because loving-kindness, as we have seen, is a mode of the cetasika adosa, non-hatred, and equanimity is a mode of the cetasika tatramajjhataṭṭā, neutrality of mind.”²⁹

Therefore, the two illimitables (immeasurables) that appear as mental factors in their own right, not as manifestations of other mental factors, are compassion and appreciative joy. Whereas non-hatred and mental neutrality—the factors underlying loving-kindness and equanimity—are present in all beautiful cittas (mental factors), these two are present only on occasions when their functions are individually exercised.

According to the classification of Four Immeasurables in *Abhidhammattha Sangaha (A Comprehensive Manual of Abhidhamma)*, there are 19 universal beautiful factors, and the (6) Non-hatred (adosa): Non-hatred has the characteristic of lack of ferocity, or of non-opposing. Its function is to remove annoyance, or to remove fever, and its manifestation is agreeableness. Non-hatred comprises such positive virtues as loving-kindness (mettā), gentleness, amity, friendliness, etc. When non-hatred appears as the sublime quality of loving-kindness (mettā) it has the characteristic of promoting the welfare of living beings.³⁰

²⁹ Bhikkhu Bodhi eds. (2012), *A Comprehensive Manual of Abhidhamma* pp. 89f.

³⁰ Bodhi 2012, 86f.

Q 3. How to distinguish the loving-kindness and empathic joy of the Immeasurable Minds?

In 2008 there was an influential research in the fields of both neuroscience and Buddhist studies, Lutz et al. 2008 *Regulation of the neural circuitry of emotion by compassion meditation: effects of meditative expertise PLoS ONE*, 3(3): e1897. (ISSN 1932-6203 doi: 10.1371/journal.pone.0001897), Researchers at the University of Wisconsin assert that cultivating compassion and kindness through learning meditation practices can make a person more empathetic. They investigated the voluntary generation of compassion in this neuronal network by asking participants to engage in compassion meditation, and measuring their brain activity using functional magnetic resonance imaging (fMRI).

In this research, they mentioned: “As this meditation is said to enhance loving-kindness when the joy of others is perceived or compassion when the suffering of others is perceived, this effect was predicted to be stronger for the negative sounds (sounds of a distressed woman) and positive sounds (a baby laughing) than for neutral sounds (background noise in a restaurant).”

It seems to connect loving-kindness to the joy of others, but we might ask: if loving-kindness occurs when the joy of others is perceived, then how to distinguish the loving-kindness and empathic joy of Immeasurable Minds? This could be a possible topic for further research.

Q 4. Is the “pure compassion” for novices the same as the third stage of the three kinds of objects?

Lutz et al. 2008 gives meditative instructions in the following way:

The state of loving-kindness and compassion is described as an “unconditional readiness and availability to help living beings”. This practice does not require concentration on particular objects, memories or images, although in other meditations that are also part of their long-term training, meditators focus on particular persons or groups of

beings. Because “benevolence and compassion pervades the mind as a way of being”, this state is called “pure compassion” or “non-referential compassion” (dmigs med snying rje in Tibetan). As described in Dr. Richad’s instruction for novices: “During the training session, the subject will think about someone he cares about, such as his parents, sibling or beloved, and will let his mind be invaded by a feeling of altruistic love (wishing well-being) or of compassion (wishing freedom from suffering) toward these persons. After some training the subject will generate such feeling toward all beings and without thinking specifically about someone.”

Here we might ask the following question: Is the “pure compassion” or “non-referential compassion” (dmigs med snying rje in Tibetan) for novices the same as the third stage of the three kinds of objects. ie. No object / Unconditional concerns (無緣) = clear cognition of dharma=cognition of the unproduced nature of all existence (得無生法忍) which is attained at “the first bhūmi” or “the eighth bhūmi”

Because if we refer to the definitions for “Kindness, Compassion, Empathic Joy and Equanimity” in the *BoBh* and the *MSA* that we discussed above, an overview of the three kinds of objects (三種所緣), towards which bodhisattvas meditate on the Four Immeasurables:

1. Sentient beings as object (有情緣) = initial determination 初發心 →
2. Dharma as object (法緣) = already in practice (已習行) →
3. No object/ Unconditional concerns (無緣) = clear cognition of dharma = cognition of the unproduced nature of all existence (得無生法忍) is attained at “the first bhūmi” or “the eighth bhūmi” will affect the classification of the No object/ Unconditional concerns of the Four Immeasurables mind states.

Q 5. Did experts exhibit stronger responses than novices to negative than to positive emotional sounds in somatosensory regions (SII, post-central gyrus) during the equanimity meditation than when at rest?

In the discussion of Lutz et al. 2008, it is said: “experts exhibited

stronger responses than novices to negative than to positive emotional sounds in somatosensory regions (SII, post-central gyrus) during compassion meditation than when at rest.” and what is “when at rest”, we can understand from the meditative instruction (Lutz et al. 2008), it said:

The Resting state (Tib. “sem lung ma bstan”- literally: neutral (lung ma ten) mind (sem)) was a non-meditative state without specific cognitive content and with a lack of awareness or clarity of the mind.

Novice’s Instructions were the following: “Neutral here means that your emotional state is neither pleasant nor unpleasant and that you remain relaxed.

Try to be in the most ordinary state without being engaged in an active mental state.” Novices’ ability to follow the instruction was assessed orally prior to the data collection.

At this point, we might also raise is the following topic of discussion: “how about equanimity meditation?” the last one of Four Immeasurables (Kindness, Compassion, Empathic Joy and Equanimity).

4. Conclusion

In *BoBh* and *MSA*, the Four Immeasurables of “kindness, compassion, empathic joy, and equanimity” may be defined, in relation to the different “superior intents” (mental activities) towards the “three categories of sentient beings” (neither-pain-nor-pleasure, pain, and pleasure), from two aspects A and B.

Viewed from aspect A, to respond accordingly to the three categories of sentient beings (in the states of neither-pain-nor-pleasure, pain, and pleasure), “kindness, compassion, and empathic joy” are generated subsequently.

From aspect B, to respond to the three categories of sentient beings (in the states of neither-pain-nor-pleasure, pain, and pleasure), who tend to produce three kinds (greed, hatred, and delusion) of defilements

(afflictions) respectively, the mind state of immeasurable equanimity is generated to lead those sentient beings to abandon defilements. This is different from the traditional definition of equanimity as “abandoning such interestedness as thinking ‘May they be free from enmity’ and having recourse to the neutral.”

In order to develop the measuring scale and to study the brain imaging measurements of fMRI/DIT, we need to investigate the conceptual and operational definition for “Kindness, Compassion, Empathic Joy and Equanimity”. Having surveyed a number of relevant papers, we find that the following five questions or topics need to be discussed between Buddhists and researchers in the fields of psychological studies and neurosciences in the future.

- Q 1. Why does “compassion” require “mindfulness”?
- Q 2. Are Only two — compassion and appreciative joy — are included as mental factors (cetasikas) under the heading of the Immeasurables?
- Q 3: How to distinguish the loving-kindness and empathic joy of Immeasurable Minds?
- Q 4. Is the “pure compassion” for novices the same as the third stage of the three kinds of objects?
- Q 5. Did experts exhibit stronger responses than novices to negative than to positive emotional sounds in somatosensory regions (SII, post-central gyrus) during the equanimity meditation than when at rest?

Abbreviations

BHSD	<i>Buddhist Hybrid Sanskrit Dictionary</i>
Bo-SW	<i>Bodhisattvabhūmi</i>
CBETA	Chinese Buddhist Electronic Text Association, and its Electronic Tripitaka Collection (2014). E.g. T30, no. 1579, p. 517b6-17
DTI	Diffusion Tensor Imaging
fMRI	functional magnetic resonance imaging
Lévi 1907	<i>Mahāyānasūtrālamkāra: Exposé de la Doctrine du Grand Véhicule selon le Système Yogācāra</i>
MVy	<i>Mahāvīyutpatti</i>
Śikṣ	<i>Śikṣamuccaya</i>
ŚrBh	<i>Śrāvakahūmi of Acārya Asaṅga</i>
Td	rNal'byor spyod pa'i sas las Ņan thos kyi sa デルゲ版チベット大蔵経 No. 4036 唯識部 6, 東京大学, 1980
Tp	rNal'byor spyod pa'i sas las Ņan thos kyi sa 北京版西藏大蔵経 No. 5537 Vol. 110 大谷大学, 1957
Vism	Buddhaghosa, <i>Visuddhimagga</i>
Vism(Ñ)	<i>The Path of Purification (Visuddhimagga)</i> 2 vols
Ybh	<i>The Yogacarabhūmi of Acarya Asaṅga</i> Part 1

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ツド大蔵経 No. 4036 唯識部 6.

《菩薩地》與《大乘莊嚴經論》之四無量心及其運用於心理學量表與腦影像之研究

釋惠敏

法鼓文理學院教授

台北藝術大學名譽教授

摘要：

首先，本論文討論《菩薩地》與《大乘莊嚴經論》對於四無量心 (*catvāry apramāṇāni*) 的解釋特色，有如下的結論：此兩個文獻以三聚有情為對象，分 A 面向：因應「三聚（無苦無樂、有苦、有樂）有情」，依序產生「慈、悲、喜」三種無量心。B 面向：對於「三聚有情」，依序容易產生三種（癡、瞋、貪）煩惱，因此菩薩產生引導此三類有情遠離煩惱之增上意樂（行相）來說明「捨」的心態，這與傳統的定義不同。

其次，從上述的結論，為發展心理學量表與功能性磁振造影儀 (Functional Magnetic Resonance Imaging system for human brain, 簡稱 fMRI) 或擴散張量影像 (Diffusion Tensor Imaging, 簡稱 DTI) 腦影像研究，我們評析一些相關論文，發現有五個議題值得佛學界與心智科學界繼續探討。

關鍵詞：

四無量心、三類有情、心理學量表、功能性磁振造影儀